ERIE COUNTY

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Telephony

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11,472 of Which 10,939 Is Paid

CONVENTION REPORT ISSUE

RECORD CONVENTION

Independents crowd USITA convention registration desk to sign up for biggest meeting in the association's long history. More than 3,000 learn about new and revolutionary equipment and techniques. Addresses are published in full in this issue.

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

XUM

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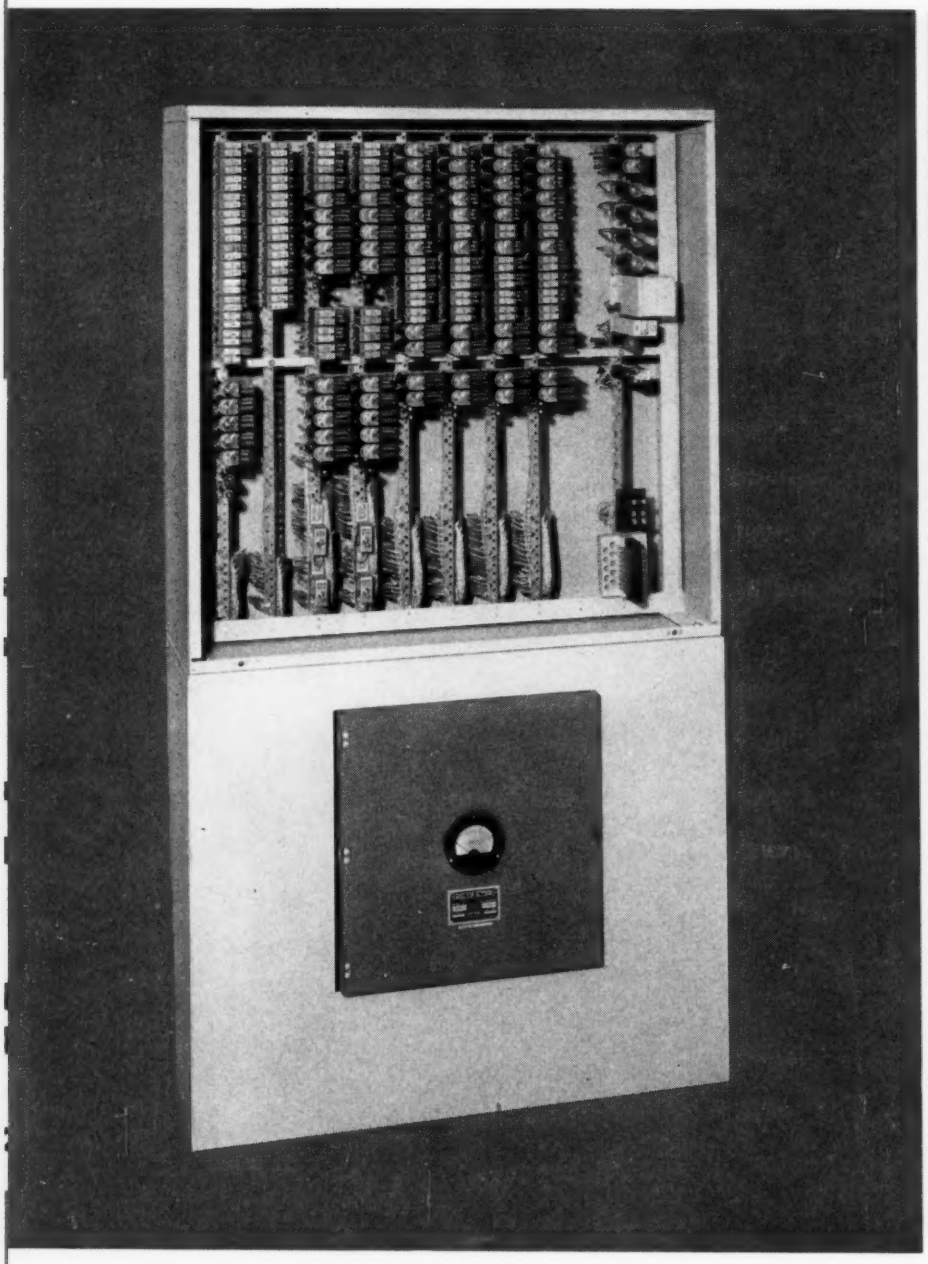
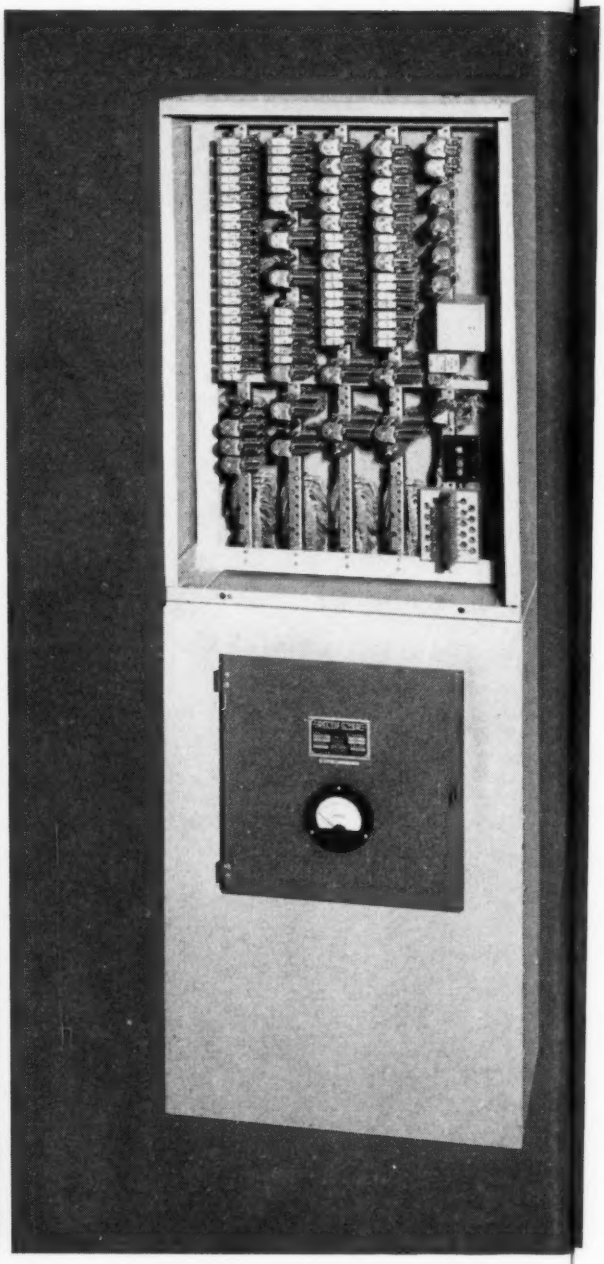


4-20 System: 4 simultaneous talking paths, 20 lines, potential of 60 stations, with extensions. Switchboard cabinet, including battery eliminator, is only 59″ high, 32″ wide, 10⅛″ deep.



2-10 System: 2 simultaneous talking paths, 10 lines, potential of 30 stations, with extensions. Switchboard cabinet, including battery eliminator, is 53½″ high, 18¼″ wide, 10⅛″ deep.

who are outgrowing present equipment will want the convenience of these PBX systems

Your business and industrial subscribers who are outgrowing their present equipment—but who do not need a *large* system—will welcome the convenience and efficiency of a 2-10 or 4-20 Dial PBX System.

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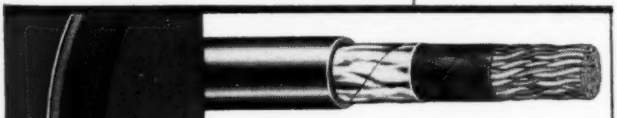

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For aerial and duct use. Polyethylene insulation and sheath. This cable has excellent transmission characteristics and can be depended upon to give long trouble-free service. Sizes up to and including 202 pair available.

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WB has that which so many others have yet to gain . . . **EXPERIENCE**

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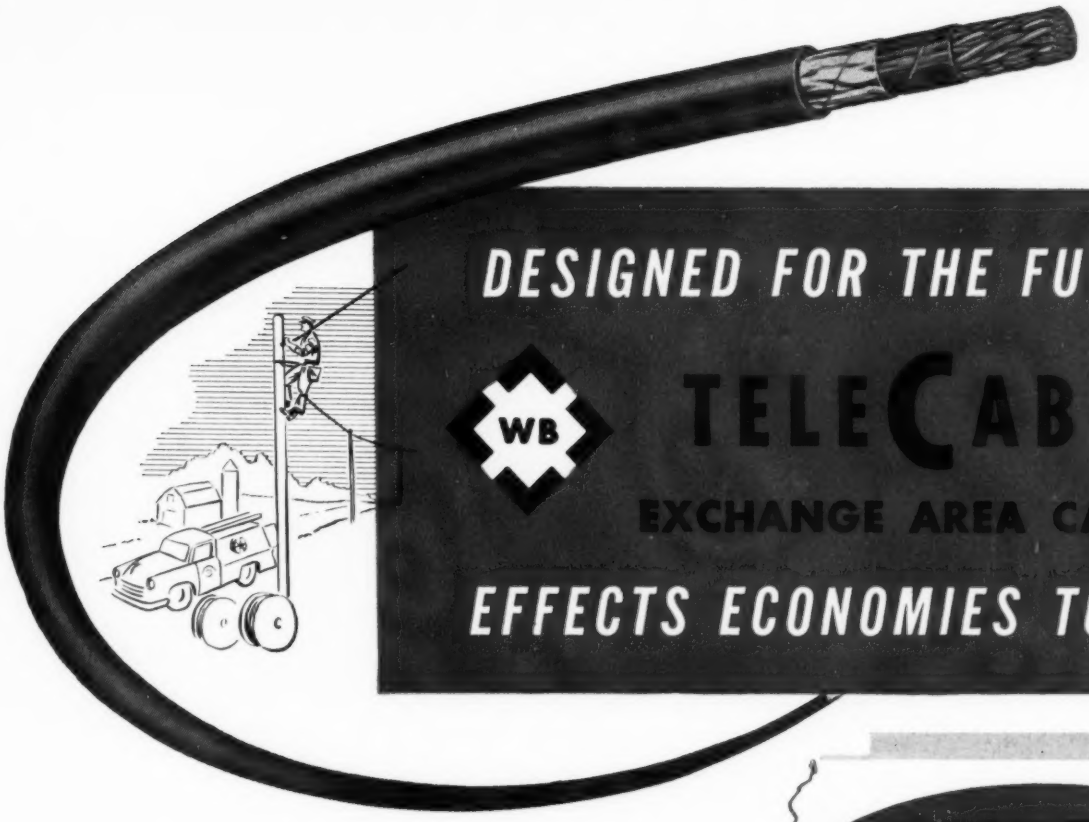

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EFFECTS ECONOMIES TODAY!

Your needs today, when correctly interpreted and properly met, mean tremendous savings in the future.

TELECABLE Exchange Area Cable meets today's needs and, as manufactured under Whitney Blake high standards of quality, promises to favorably affect the future economy of the Independent Telephone Industry as greatly as WB TELEPRENE® neoprene jacketed drop wire has in the past ten years.

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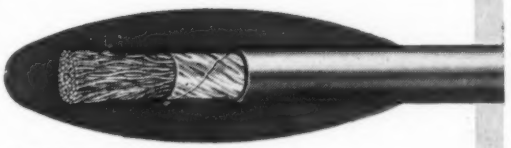

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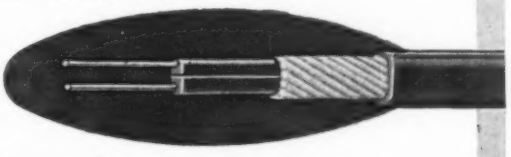

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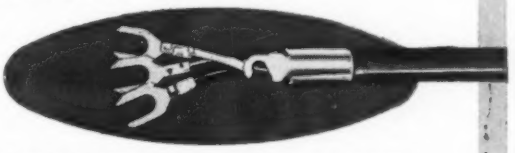
Famous WB long life drop wire has demonstrated that a BETTER wire is much more economical than a CHEAPER wire.



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CROSSBAR

Crossbar switching allows you maximum expansion . . . requires practically no routine maintenance . . . gives you high traffic capacity . . . has convenient drawer mounted switches which are easily accessible . . . allows PBX grouping service . . . is adaptable to inter-toll dialing.

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FLASHES AND PLUGS

UNEXPECTED CASE OF TROUBLE. Dermot K. Foley of Inglewood, Cal., sent TELEPHONY the following story from the Los Angeles *Herald-Express:*

It's a lucky thing for Wesley Goodwin, 31, that the geniuses of the automobile industry haven't yet invented a car that can climb —or his friends might have had to order funeral sprays for him.

Goodwin, a telephone repairman, was roosting high up a pole replacing a worn cable, seemingly safe from the everyday dangers of street life, even from the particular peril of Los Angeles traffic.

But, no, a man apparently isn't even protected against traffic mishaps these days when he's perched 50 feet off the ground.

Goodwin was almost jolted from his vantage point when a car that was being pursued by police caromed into the pole.

Ironically, police said the car was driven by a man whose last name is traditionally given a flourishing pronunciation by telephone operators—Dennis F. Nine.

Nine, who had been chased for 2 miles, was jailed when police assertedly found needle marks on his arm.

Goodwin was so shaken by the incident he was unable to immediately give a statement to police.

•

LINEMAN LOOKOUT. Telephone employes are always performing public service over and beyond the call of duty, it seems. Latest incident is reported from Ionia, Mich., where a telephone company lineman found himself right "in the line of duty."

Perched on a utility pole, he saw a red-haired escapee from the Michigan Reformatory. Quickly plugging in on the line, he called police. Two prison guards picked up the fugitive minutes after the call came from Lineman Robert Miller of Saranac.

•

TEAM WORK. Another variation on the theme of the detective service often furnished by telephone folk "for free" was given in a recent issue of "Hello!" published by Ohio Bell.

Seems an Arizona woman on a vacation trip stopped in a small Ohio town to make some purchases at a grocery. Many miles later, she found that in leaving the store, she had also left her purse, containing her glasses, diamond ring, money and such valuables.

Panicky because she didn't even know the name of the store, she called long distance from a paystation when she reached the next town. The operator took her problem to heart and located the grocery, which was closed. It was next to the postoffice, so she tried that. The office was also closed, but further persistence located the postmaster who lived in a nearby town.

He counselled courage—'lowed that if the purse were in the store, there'd be someone there to return it to the owner by the time she got back to pick it up. A few days later the operator got a letter of thanks.

CIRCULATION

Guaranteed circulation of this issue is 11,472 of which 10,939 is paid.

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THE JOURNAL OF THE TELEPHONE INDUSTRY

Since 1901

October 27, 1956

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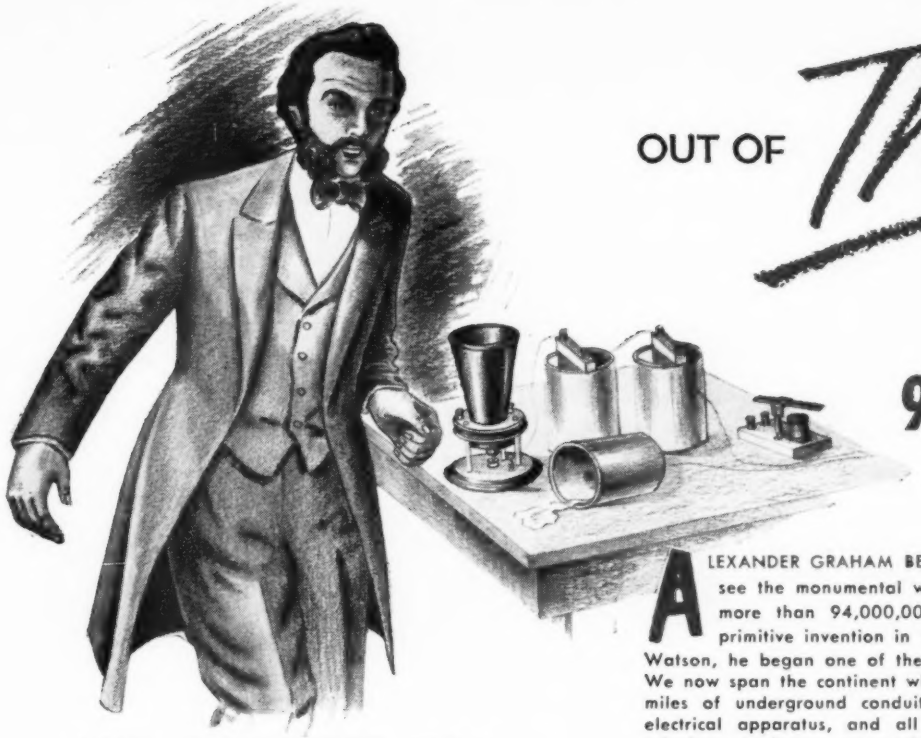

OUT OF *This*...

CAME

94,000,000

TELEPHONES

ALEXANDER GRAHAM BELL would no doubt be astounded if he could see the monumental worldwide network of voice highways, linking more than 94,000,000 telephones, which has resulted from his primitive invention in 1876. Speaking from room to room with Mr. Watson, he began one of the greatest advances in communication history. We now span the continent with our voices, and take for granted all those miles of underground conduits, elaborate and intricate "almost human" electrical apparatus, and all the research that has gone to bring the telephone to its present peak of efficiency.

Much of that "almost human" electrical apparatus is Lorain Products equipment. Its part in the intricate communications system is always a vital one, with the operation of the entire system often depending upon it. Under this responsibility, quality is a "must". We at Lorain are proud of the quality of our equipment, because we know it means better, more reliable service for you and your customers. Quality is never anonymous—invariably it has a famous name—a name that inspires unquestioning confidence. This confidence is yours when you buy Lorain equipment. For two decades this famous name has been the symbol of utmost dependability, and unmatched performance . . . giving lifetime, trouble-free, maintenance-free service to its users. We know that there are exciting possibilities ahead for the telephone industry, that only the surface has been scratched in this business, and we are constantly expanding our production facilities, doing never-ending research; doing our part to meet the challenge and to keep pace with world communications.

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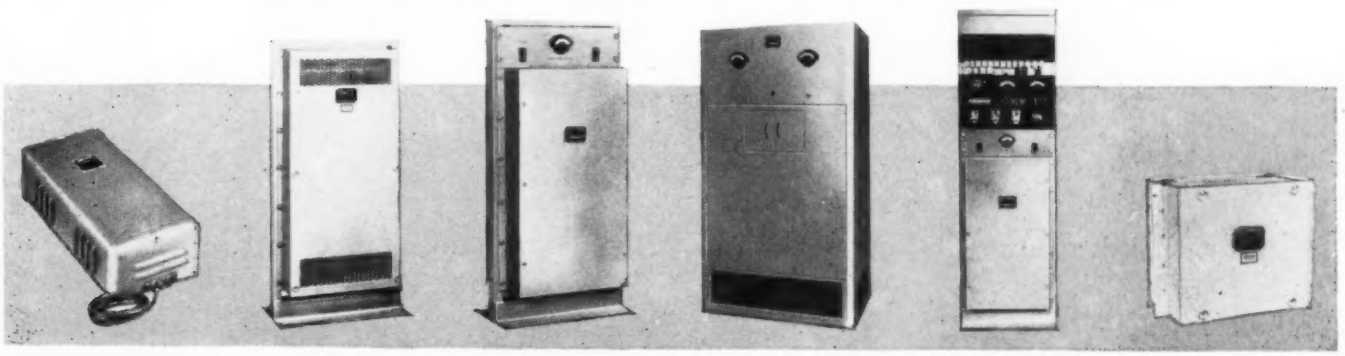

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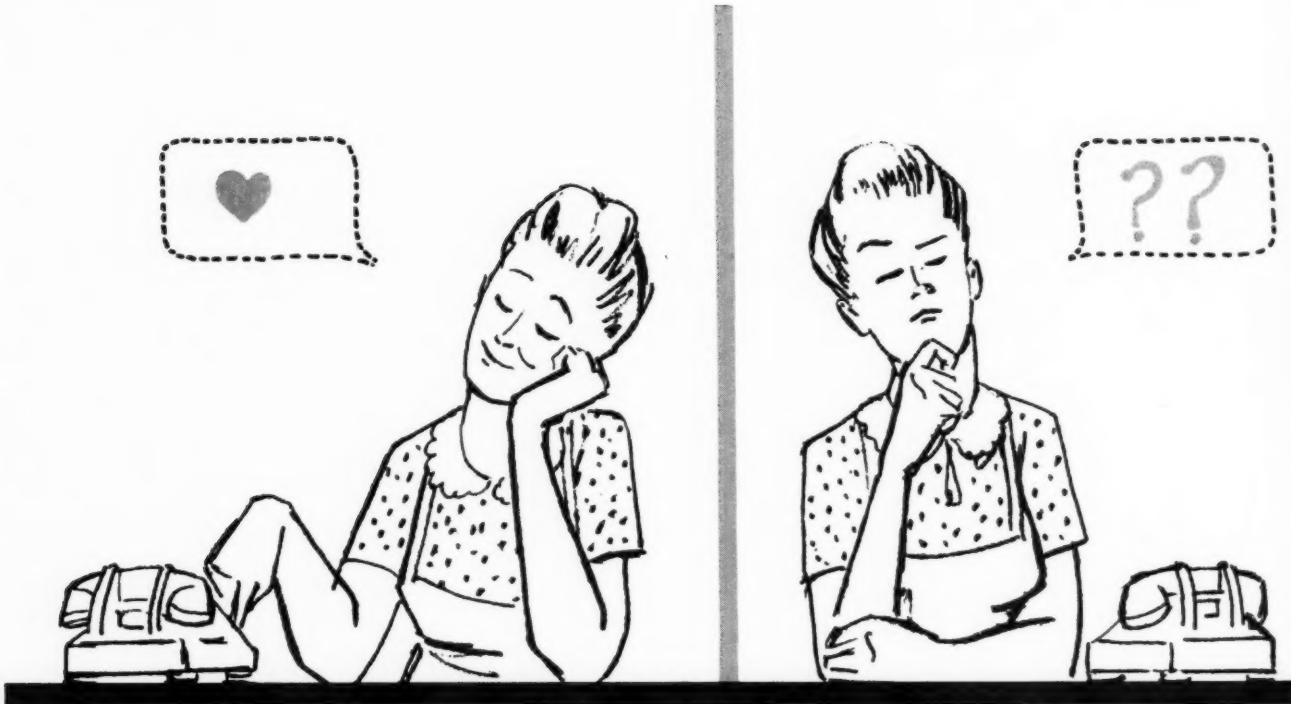

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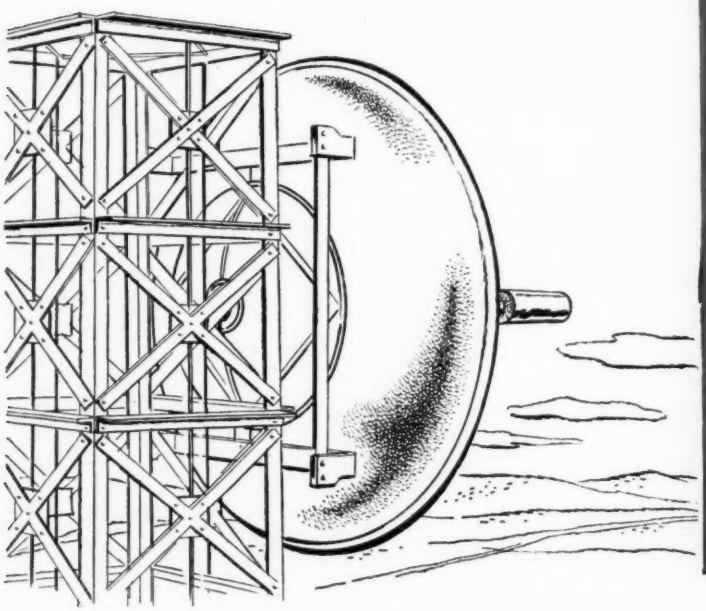

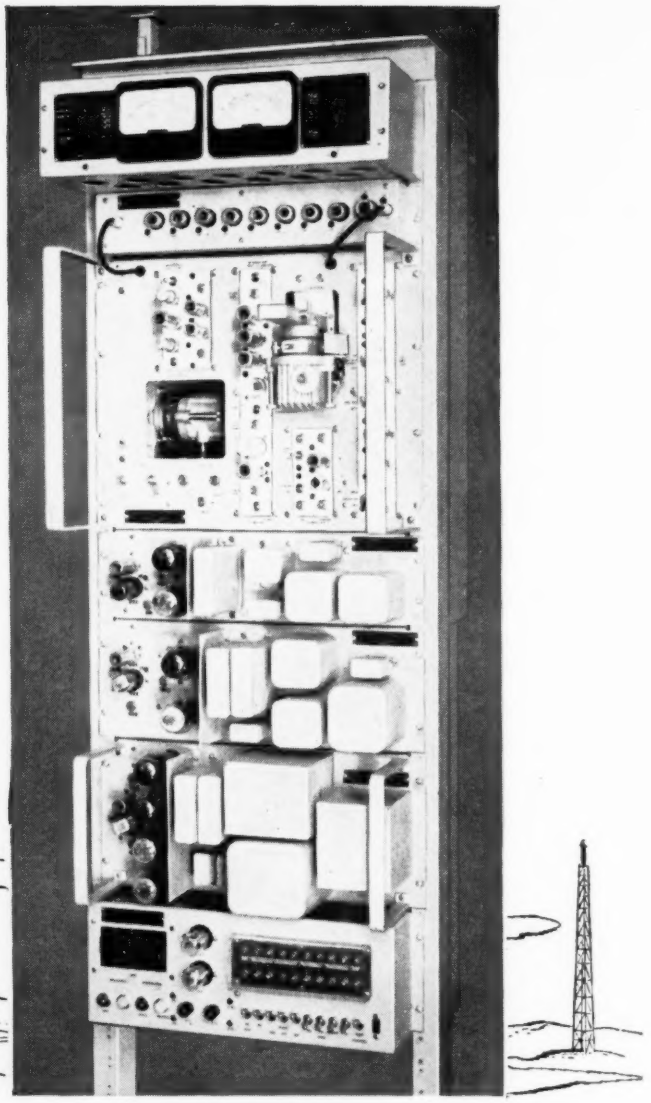

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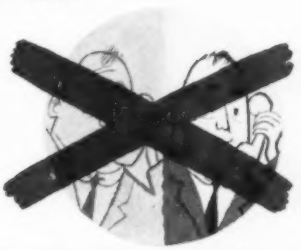

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No other independent telephone cable manufacturer can make this statement supported by proved values . . . only ANSONIA has the experience, equipment and know how to deliver these great cables.

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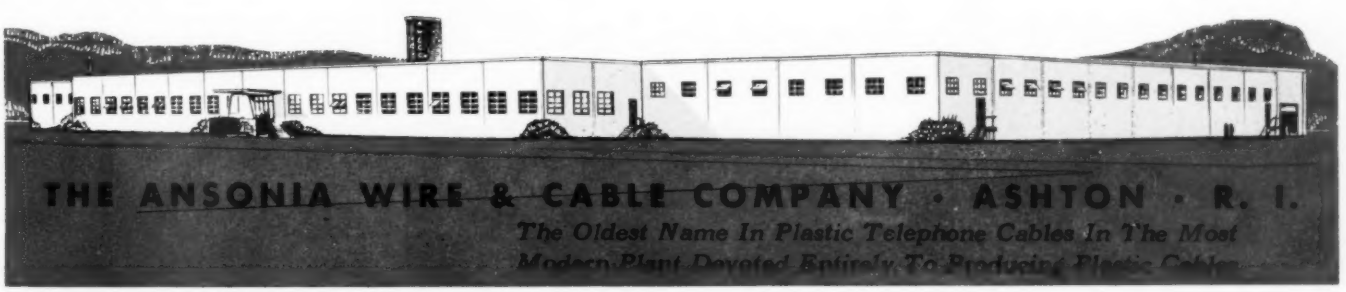

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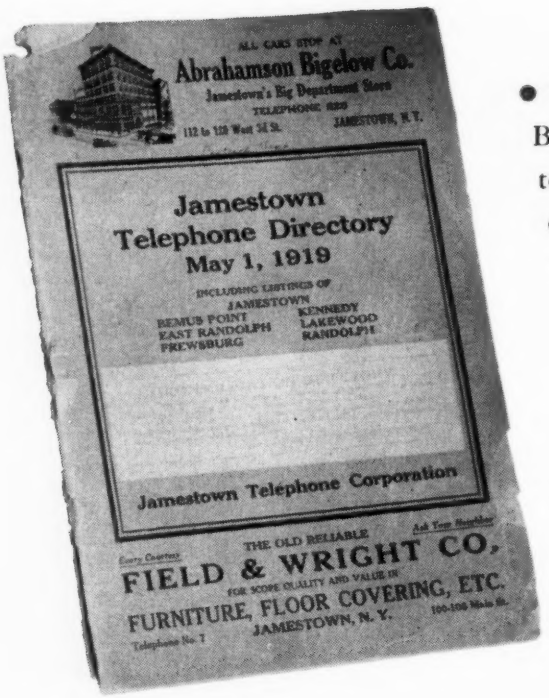

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USITA Convention Report

By R. C. Reno

WE ALL have heard the often-repeated expression by convention-goers that "when you attend one convention you've attended all conventions." Convention reporters also many times have expressed a variation of this old cliche by proclaiming that when you "write up" one convention you have "written up" all of them.

And, there is no doubt this observation could have been applied to many of our past telephone conventions, but it certainly is not the case with the 1956 annual convention of the United States Independent Telephone Association, held Oct. 15, 16 and 17 in Chicago, and attended by more than 3,000 representatives of Independent operating and manufacturing companies.

In this reporter's opinion, the 1956 Independent meeting was a standout against all of the 27 USITA conventions he has attended—so to him it was not "just another convention."

The thing that made this convention a standout was the evident spirit of progress on the part of the delegates, themselves, particularly those from the smaller and medium-sized operating companies. This spirit was kindled by the realization that the telephone art is changing rapidly both technically and economically, and that if our industry is to fulfill its obligations in serving the American people, individual operating companies must become interested in and adopt many of the new developments and equipment offered to them by the laboratories and manufacturers.

There is no doubt that this realization was generated, to a great extent, by the outstanding convention exhibits and demonstrations of new and revolutionary equipment and techniques by manufacturers, some of which were described and emphasized at the conferences and sessions of the convention.

Particularly, with the increased application of electronics in the telephone field, which is ushering in "a new era in telephone communications," those attending the convention realized that "there will be no standing still" in the future—that to satisfy the requirements of the public and even to stay in business they must take heed of the technical advances being made in the art.

Likewise, the delegates learned from the speakers' platform that they must be more conscious of the need for (1) more merchandising and advertising of their services and companies; (2) improved relations with their employees and their public; (3) better bookkeeping and accounting records; (4) increased interest in state and federal legislation which affects the telephone industry; (5) adequate rates and new capital with which to expand and improve their plants and service, and various other facets of the business.

Stanley Article to Appear In the Nov. 3 Issue

In order that we can devote this entire issue to the report of the USITA convention, the regular monthly feature entitled "Today's Highlights of Finance, Taxes, Business Trends," by Willard F. Stanley (usually published in the last issue of each month) will be published in the Nov. 3 issue.

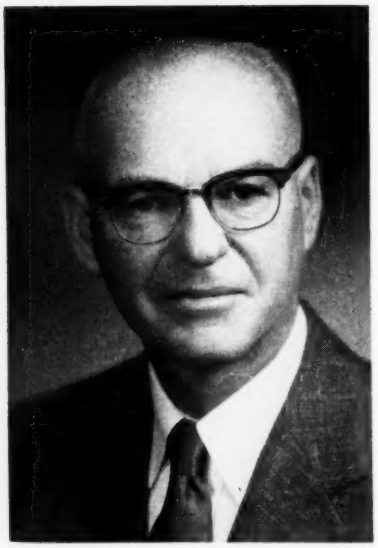
Yes, this year's USITA convention was made an outstanding one by the spirit of the delegates—they came and they were convinced that the Independent industry is "on the march" in developing and adopting new equipment and techniques, with which they can continue to render the most up-to-date service to their communities, and to maintain the Independents' essential position in the over-all telephone industry in this country.

But, more important came the conviction to those attending this year's convention that individual companies — large and small — cannot afford to ignore these advances which affect every phase of their operations if they are to remain healthy and strong—or stay in business, for that matter.

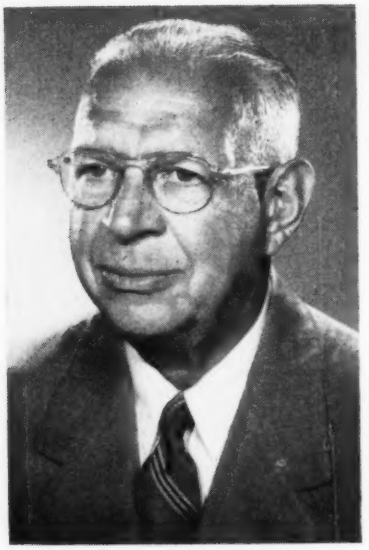
All of the major addresses and reports presented at the convention are published on other pages of this issue, with the exception of an address by The Reverend James W. Fifield Jr., pastor of the First Congregational Church of Los Angeles, and the producer and conductor of the popular radio and television program, "The Lighted Window." A summary of his address follows:

Dr. Fifield, in his talk on "Our Human Resources," cited great thinkers of the day to back up his thesis that though the nation appears healthy on the surface, the foundations are giving way—things that mean the most are disappearing. He said what is needed is more respect for moral law and a climate of freedom, and explained, "If you institute government by collectivism, you take away individual responsibility, authority, and opportunity for initiative, and you destroy the climate

D. C. POWER
President



C. W. HAAS
First Vice President



H. A. BARNHART
Second Vice President

F. B. McHENRY
Third Vice President

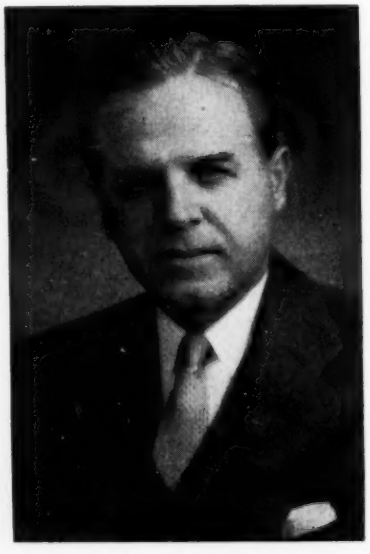
of freedom—it's like cutting a tree's taproots."

Dr. Fifield pointed out that today nearly half the people of the world are beholden to the communist, collectivist, anti-God philosophy, and said, "If you think that doesn't affect you people in the telephone business, you're wrong. It's time to devote some of the thinking that's being devoted to the shingles and roof—to the foundations."

Dr. Fifield observed that the moral and spiritual decline of the nation is marked by the prevalence of juvenile crime, the high incidence of alcoholism, and a rising divorce rate. In his own Los Angeles County there have been as many applications for divorces as for marriage licenses, he said.

We are living now in a collectivist economy, he warned. People have shifted their allegiance from God to the government and are looking to Washing-

C. D. BROREIN
Treasurer



C. S. BAILEY
Executive Vice President

G. C. RICHERT
Secretary

L. F. ROBERTS
Director of Information

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New USITA Officers

President
D. C. POWER, New York, N. Y.

First Vice President
C. W. HAAS, Big Timber, Mont.

Second Vice President
HUGH A. BARNHART, Rochester, Ind.

Third Vice President
FOSTER B. McHENRY, Jefferson City, Mo.

Executive Vice President
CLYDE S. BAILEY, Washington, D. C.

Treasurer
CARL D. BROREIN, Tampa, Fla.

Secretary
GEORGE C. RICHERT, Washington, D. C.

Assistant Secretary
COURTNEY S. SNYDER, Washington, D. C.

ton for salvation. They are looking not to God, but for political, economic or sociological answers to their problems.

In urging the return to moral law, Dr. Fifield said God and one are still a majority. He went on to demonstrate that moral law cannot be repealed, and that whenever somebody or some nation breaks this law, they suffer the consequences. He stated the foundations on which one should build are: (1) The Ten Commandments and (2) The Sermon on the Mount. Dr. Fifield's talk will appear in a future issue of TELEPHONY.

It is understood that so impressed were his listeners that he was approached by various Independent telephone company representatives as to how they could help sponsor his radio or television programs in their local communities—in order to help preserve our system of individual freedom and private enterprise. No doubt there are others who would like to have information on the sponsorship of his programs and it is suggested that they write Dr. Fifield direct.

Names of USITA directors elected by the convention, of officers elected by the directors, and members of the executive committee, are given in boxes accompanying this report.

The association's board of directors, meeting during the convention, set Oct. 14, 15 and 16 for the 1957 convention, which will again be held at the Conrad Hilton Hotel in Chicago.

The directors also adopted two resolutions — one urging participation of Independent telephone companies in providing communications facilities to the Department of Defense, and another one dealing with REA financing.

The resolution pertaining to defense communications facilities reads as follows:

"RESOLVED: That all Independent operating telephone companies be urged to provide, within their operating areas, for lease or rental under equitable terms set forth in a Communications Service Authorization (CSA) all of the communications facilities and/or equipment required by the Department of Defense, and

"Be it further resolved that it is in the over-all interest of both the program of National Defense and the Independent industry that Independent operating telephone companies purchase from Independent manufacturing sources, in so far as it is available, all equipment required in the provision of facilities for military installations and all operating companies are urgently urged to do so."

The text of the resolution dealing with REA loans follows:

"RESOLVED: That all Independent operating telephone companies be urged to improve and expand their telephone service in keeping with the national pattern of communications requirements, and that where such a program can, in the judgment of the management of the individual company, be accomplished most advantageously by borrowings from the REA, under terms of a loan agreement providing freedom by the management in the selection of the type of central office equipment and the provision of their own competent engineering services, such borrowings be approved by the USITA in the interest of preserving to the greatest extent possible the individual identity and financial stability of its individual member companies."

New USITA Directors

Re-elected

E. W. BLAKESLEE Santa Monica, Cal.
L. D. DENSMORE, Lincoln, Neb.
C. W. HAAS, Big Timber, Mont.
M. M. HALE, Lincoln, Neb.
L. W. HILL, Tarboro, N. C.
D. O. HOOD, Medford, Ore.
H. Y. KRAEPELIEN, Galion, O.
F. G. LaPRADE, Martinsville, Va.
R. A. LUMPKIN, Mattoon, Ill.
KELLEY McNISH, Bristol, Tenn.
A. J. SORDONI, Wilkes-Barre, Pa.
L. H. WARNER, Chicago, Ill.

Elected

J. B. ATHERTON, Honolulu, Hawaii, to succeed J. J. CLERKIN of Chicago, resigned.
R. J. FEGAN, Junction City, Kan., to succeed C. S. CADWELL of Chicago, resigned.
W. P. HOLLIS, Chicago, to succeed C. D. MANNING of Chicago, resigned.
WALTER G. WRIGHT, San Angelo, Tex., to succeed R. E. SHOTTS of Chicago, resigned.
ELNATHAN GATES, Minneapolis, Minn., to fill the unexpired term of the late W. B. CLAY.

USITA Executive Committee

D. C. POWER, New York, N. Y., Chairman
T. A. BOYD, New York, N. Y.
C. D. BROREIN, Tampa, Fla.
RAY DALTON, Everett, Wash.
L. D. DENSMORE, Lincoln, Neb.
M. M. HALE, Lincoln, Neb.
W. C. HENRY, Bellevue, O.
L. W. HILL, Tarboro, N. C.
C. C. PEARCE, Riceville, Iowa
A. J. SORDONI, Wilkes-Barre, Pa.
R. C. TAIT, Rochester, N. Y.

Two features of the convention—the annual meeting of the Independent Telephone Pioneer Association and the meeting of state telephone association executives—will be covered in forthcoming issues.

In closing this report of the 1956 USITA convention, we would like to repeat the statement we made in last year's convention report issue, when we said:

"Presenting the USITA convention in print in such a short time following the convention is a costly procedure and taxes the TELEPHONY staff in getting out the issue by its publication date. However, we feel that "giving" all of those who are unable to attend the USITA convention the meeting in print is well worth the cost and effort.

"We hope that all of those who did not get to attend convention sessions and conferences, and those who were not able to attend the convention at all, will read this issue thoroughly in order to get the benefit from the worthwhile addresses presented at the convention.

"After all, conventions are an important phase of the telephone business and much time and effort is expended by the USITA staff and speakers to see that they provide information which will help every telephone company, of every size, in the operation of its business. If telephone men and women do not attend the conventions, or take the time to read what transpires at them, then the work of those planning and taking part in conventions is, to a great extent, wasted.

"In presenting this issue, TELEPHONY, again, is contributing to the over-all effort to help Independent telephone men and women to get the most out of this year's USITA convention, which really was planned and held for them."

Independent Telephony Looks to the Future

By MERLE M. HALE
USITA President

ONE of the most remarkable men in Washington, D. C., is Theodore Francis Green, oldest senator in United States history. To celebrate his 89th birthday he left last month on a 12,000-mile marathon tour of Africa which would sap the energies of a man half his age. The journey entails arduous motoring and tedious stopovers in out-of-the-way equatorial settlements, including the steaming Belgian Congo. The Rhode Island senator's undertaking caused little surprise among those who know him. Noted for keeping in good physical condition, he gave up tennis reluctantly only a few years ago, and still insists upon walking the two miles from his home to Capitol Hill at least four times a week.

This spry octogenarian-plus also is an enthusiastic follower of the Capitol Cocktail-Canape Circuit. At one of these recent parties where fun was running high, Senator Green was observed over in a corner thumbing through his little black book. A curious friend inquired: "What are you doing, trying to figure out where you go next?" "No," replied the senator, "I'm trying to figure out where I am now!"

Well, friends, I went to a couple of our manufacturers' hospitality rooms last night, but I got home early. And I want to assure you that I don't need to look in my little black book to figure out where I am now. (And all of you look to me as though you know where you are and why you are here. Especially the ladies. I know I speak for all the men when I say, "Thank you, ladies for coming in such large numbers and for adding to our meeting the friendly warmth and distinctive charm that only the feminine presence can impart.")

Yes, I'm sure we all know where we are and why we are here. We know that we have come—many of us long distances—to enjoy the traditional annual convention of our enterprising national service organization, the United States Independent Telephone Association. Here we will meet old friends and make new ones. Here we will renew the common bond of sympathetic understanding that for six decades has held us closely and resolutely together. . . .

I am not going to spend much time reporting on the activities of your association and its accomplishments during the past year. That has been done in his usual lucid and comprehensive style by our Executive Vice President, Clyde Bailey. . . .

I do want to say here that it has been a pleasant experience working with Clyde Bailey this past year. I can report to you that he is your devoted servant. Hours mean nothing to him. He is alert to what is going on in Washington which would affect us, and if something needs to be done he does it without urging or prompting. We are fortunate to have an executive vice president who has the knowledge of and interest in our industry that Clyde Bailey has.

Forecasting Precarious Job

In late years, it seems to have become the task of the outgoing president to forecast the future—something that no man has been able to do with any degree of accuracy since time began. Attempting to predict what is going to happen in our business puts me in the position of the minister who finished his talk to a Sunday School class and asked if there were any questions. A shrill voice piped up, "Please, sir, why did the angels walk up and down Jacob's ladder when they had wings?" "Ah—er . . . a good question," said the minister, "Now would anybody like to answer?"

As I see it, our situation right now is a little confused and complicated by a lot of things, and anyone who can predict the outcome is qualified to answer an ad that recently appeared in a Nebraska newspaper! "Wanted—man to work with dynamite. Must be willing to travel!"

However, there are some things, I think, that are almost self evident, and in directing your attention to them briefly I hope my aim will be better than that of an old prospector who was telling a bunch of tenderfeet at the dude ranch about a hunting experience he had.

"There I was," said the grizzled old gold hunter, "trapped in a narrow draw with an old grizzly bar only thu'ty feet from me ahind a tree. It was a tight spot. I figgered the only way to git him was by bouncin' a rifle ball off the canyon wall. Well now, bein' a right good shot, I gauged the wind, figured the ricochet angle, judged the hardness of the canyon sides, allowed for the change in the rifle ball's shape after knockin' agin the wall, took aim and let'er go."

The old fellow paused. One of the tenderfeet blurted out, "Did you get him?"

"Nope," said the prospector, "missed the wall."

Today, in trying to foretell the job that lies ahead for us, I hope I don't miss the wall entirely!

Before we seek to lay out a blueprint for the job that lies ahead, first let us pause briefly to see how far we have come and where we stand.

Our past need not detain us long. Some of you have lived long enough to have seen the telephone, once regarded as a toy, develop into the nerve system

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of a nation. Independent telephony has played an important and historic part in that development.

Statistics Reflect Growth

Today our 4,700 companies, through almost 11,000 exchanges, operate nearly nine million telephones which serve two-thirds of the geographical area of the nation and its territories. Investment in our combined plant now exceeds 2¼ *billion* dollars, and our annual gross revenues total approximately 650 million dollars. Today we join with the Bell System, one of the world's largest and most successful enterprises, to give this country the best telephone service in the world. Together we interconnect more than 56 million telephones here at home, and can connect with some 40 million in the world outside. This country, with 6 per cent of the world's population, has 57 per cent of the world's telephones.

Yes, we have come a long way since first we crept in swaddling clothes at the turn of the century. Now, more important, the question is: Where do we go from here? And how do we get there?

None of us knows exactly, but there are certain facts and trends which enable us clearly to see what lies ahead with at least a fair degree of certainty.

Technologically, we are way ahead of ourselves. Our advances in electronics and automation pose problems that can't be solved overnight. Many of their practical benefits to mankind are quite a way off, but we cannot ignore their potential place in the scheme of things as we blueprint our path for the future.

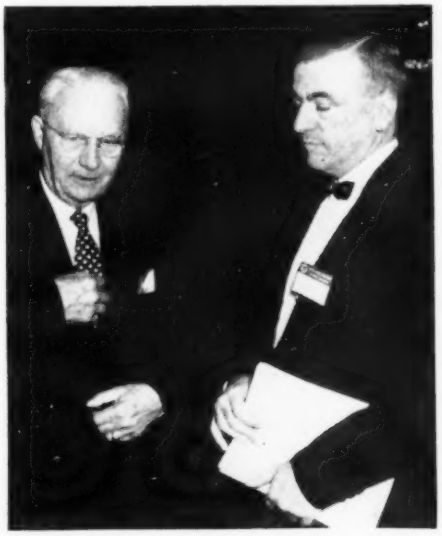
Today's telephone communications systems have been built around two principal instrumentalities — the relay for the complicated job of interconnecting telephone lines, and the vacuum tube for extending transmission to great distances. Many other complicated devices have been based on these two major developments. One of these—not so complicated but world-transforming despite its tininess and simplicity—is the transistor. It has been said that this little device symbolizes the new era just beginning to unfold. *Fortune* magazine said of it:—"In the transistor and the new solid-state electronics, man may hope to find a brain to match atomic energy's muscle."

We all know that in the telephone business the transistor already is a vital part in the complicated computer type switching systems that ultimately will enable any telephone user to dial his calls across the continent as easily as he now calls across the street. In fact, people in many communities already are doing so, speeding their messages over an intricate network of microwave radio, coaxial cable, and aerial and underground cables equipped with carrier. Closed-circuit television is fast becoming a facile tool for industry, and only recently we read that telephone-television has come closer to actuality through the development by Bell Laboratories of a telephone that transmits pictures along with sound so that persons talking by telephone may see each other on a 2x3-inch screen. It is the first system of its kind to use a pair of ordinary telephone wires. A caller's picture can be dialed like an ordinary telephone call, and we are told by the technicians that ease of installation of the equipment gives it promise of being commercially feasible.

Left to right: M. M. Hale, Mrs. Hale of Lincoln, Neb.; R. P. Judy of New York City, and Mrs. B. C. Burden of Lincoln.

Machines Have Memory

Under development today is a new switching system capitalizing on the high speed of electronic switches and using fast electric memory. We are told that within a couple of years, this equipment will be in actual use. Whereas today, when you dial a number, a thousand or more relays must operate to put your call through, the new electronic system will have no moving parts. It will be much smaller, more compact than present systems, and its fast electronic logic and memory will enable it to diagnose its own troubles, and will make possible new kinds of services not feasible with present electro-mechanical systems.



L. A. Gritten (left) of Everett, Wash., and Dan DeHayes of Columbus, O.

There are other predictions that we can make without much hesitancy. We have proof positive that the communications industry will grow, that current types of service will be improved in their usefulness, and that new forms of communications services will become available. It is estimated that before the end of this century more than 100 million telephones will be in service in this country. A great many of the sets will be in color, and an extension in each room will be as commonplace as an electric outlet by each chair. Party lines are expected to disappear, and most residences will have a second line. Equipment will function in millionths of a second, instead of thousandths of a second as at present.

Television and other forms of visual communication will be widely used in industry; the use of facsimile over telephone circuits will be extended; higher speed teletype transmission will be placed in commercial service, and data transmission over regular telephone circuits will be used generally, permitting efficient centralized bookkeeping by national concerns.

It is not difficult to visualize the potentialities of these remarkable inventions, and the impact they will have on our industry. While changes will not come overnight, many of them will be upon us before we know it. They compel us to take a new look at future plant requirements and expansion programs. We can depend upon it that new

Left to right: Harold Payne of Export, Pa.; G. W. Turner of Forrest, Ont., Canada; James Thomson of Buckingham, Que. Canada; George Richert, USITA secretary; J. N. Johnson of Ft. Myers, Fla., and W. H. Thomson of San Angelo, Tex.

problems will arise. As these changes and new challenges confront us, we will need to resharpen our senses as to the right thing to do and when to do it.

Off with Old, On with New

If we are to keep in step and not fall by the wayside, we must make some drastic departures from the old-established order of things. I wish our problems were as easy of solution as they seemed the other night when I heard a television comic solve the problem of war. He would put a stop to all wars, he said, by the simple expedient of world-wide nudism. If none of us wore uniforms we wouldn't know who our enemies were. He admitted, however, that his cure for war would result in some ridiculous looking parades.

If we are to meet these new challenges of the electronic age, if we are to maintain the communications that have become so necessary to our way of life, there are many things we must do. First and foremost we must maintain, and in many cases improve, earnings. That, I know, is easier said than done. The current new inflationary trend, with its resultant tight money market, does not simplify our task at the moment. But we shall have to find a way.

We must maintain good plants and give good service. We shall need to look to our revenues by adopting more aggressive and carefully planned merchandising techniques. We shall need to muster all of the know-how we can command, and that brings me to what I think is going to be our greatest need of all—people. We are going to need trained, intelligent people to man our complicated gadgets and machines, and to help us solve the problems generated by the most complicated machine of all —the human personality.

Summing up a recent talk to some college students on the challenging aspects of modern telephony, Eugene J. McNeely, executive vice president of the American Telephone & Telegraph Co., said:

"The success of any organization, business, city, or nation depends upon three things: (1) The kind of people in it—their character, their ability, their objectives; (2) the money, materials, information, equipment available, and (3) how well the people work together as a team.

"With all of the brilliant research that has been done and all of the amazing scientific discoveries, we still know very little about people and why they act as they do. Jealousy, greed, a desire to be a big shot or to dominate others is just as common now as it was 100 years ago. We hope progress will be made in this field in the years ahead.

"Understanding our fellow human being is a difficult problem, and knowing what to do about it is even more difficult. We all have to work at the human side of the job just as hard as we work at the technical side, because only through that effort can we find real success and happiness."

C. H. McLean (left) of New York City and A. S. Barker of British Columbia, Canada.

Must Develop Managers

In looking ahead to future personnel requirements, we shall need to give more attention to management development programs. Someone has said that "only the future holds the answer to how well we build today." The opportunity to build today for tomorrow is available to every telephone executive. Through management development programs, carefully thought out and planned for the long view, a manager can produce from his own ranks men well qualified to fill the highest positions.

One exception may have to be made. We may have to go outside our ranks on occasion to recruit engineers. We all know that the shortage of engineers poses a serious problem in this country. In the light of the challenge facing us, the college graduate trainee assumes an important role. Perhaps it is timely to ask ourselves a few questions in this respect. Is the Independent telephone industry attracting its share of college graduates? If not, why? Are company recruitment practices in college placement work outmoded? Are adequate training programs being provided? How are starting salaries, compared to other industries? These it seems to me, are questions we shall have to ponder. They deserve and demand our attention.

We shall need to give better training to our present engineers. With this in mind, I recently appointed a task force to investigate the desirability of establishing a technical seminar for telephone engineers along the lines of the management courses offered at several of our universities. This action is taken in recognition of the ever-increasing need for engineering and management personnel to be versed in the broad technological aspects of telephony. The seminar, as presently visualized, would be designed better to equip experienced engineers and operating supervisors to discharge management responsibilities by discussions of new, as well as time-proven, techniques and methods of telephone engineering. The treatment accorded various segments of telephone plant will emphasize the economic selection of equipment and materials as they relate to rates, costs, and management decision. Technical subjects will form the basic agenda.

The program, under the sponsorship of the USITA, would be coordinated and presented by a participating college or university. In this respect several leading colleges have indicated enthusiastic response to tentative plans and have expressed a desire to participate.

(Please turn to page 102)

Excerpts of Report of

USITA Executive Vice President

By CLYDE S. BAILEY

THE VERY existence of an organization like the USITA is proof of the realization that no telephone man or woman can live in isolation.... The association is the outward expression in the field of national affairs of the abiding dedication of Independent telephone people to their business.

The association has traveled far in its progress since its birth in 1897. It holds in grateful and respected memory the 31 presidents who have served as its chief executive in the 59 years of its existence. Of sentimental memory likewise are those who have served on the association's board of directors and also those who, while not wearing the mantle of office, have devoted their talents to the association's problems and welfare of the industry.

With the growth of the telephone business, the problems of the association have multiplied and the opportunities for service increased. The USITA in the work it is doing through its full-time staff and capable and conscientious committee members is consecrated to the walfare of every Independent telephone company. The organization is the national work-shop conducted on behalf of the thousands of Independent companies, little and big, that comprise our branch of an important part of the American economy. . . .

Over the years, the association has been a constructive force on many subjects on numerous fronts before many forums. It has many monuments to the success which has crowned its efforts. . . .

Just A Few Figures

The Independent telephone industry will be 60 years old next year. . . . From a mere fledgling in the late '90's, the industry has prospered and grown in an atmosphere of free enterprise until today it has an aggregate plant investment of about 2¼ billion dollars, almost 9 million telephones, and annual gross operating revenues of more than 650 million dollars. Independent companies have upwards of 100,000 employes. Their securities are owned by 200,000 stockholders. At the end of 1955 there were 4,714 individual companies and they provided telephone service out of 10,859 exchanges to an even larger number of cities, towns and smaller communities.

Every operating factor in the business over the years has increased except one: The number of operating companies has been steadily declining as a result of mergers and consolidations with other operating units (or as a result in some instances of purchases of Independent telephone properties by Bell System companies). This economic facet of our business has its counterpart in other fields including the electric, gas and transportation industries. . . .

No Let-Up In Service Demands

Independent telephone companies furnish telephone service to an estimated two-thirds of the geographical area of the nation. . . . Some companies operate on the fringe of larger communities that are bursting at the seams. The natural desire of people to live where there are trees is having a favorable impact upon telephone development in the service areas of Independent telephone companies. It has been reported that since the end of World War II, more than 37 million babies have been born to American families. In the next 10 years it is estimated there will be 42 million more, and in the decade ending in 1975 births will total 52 million.

This expansion in population has great significance to the telephone industry. . . . It means more homes. . . . More homes mean more telephones. With one telephone for every three persons compared with an average of 61 persons for the rest of the world, the American people are more telephone conscious than people anywhere else on the globe. . . .

Review of Legislation

It has been customary in my annual reports to survey the field of legislation, enacted or proposed, during the preceding year of interest to the welfare of Independent telephone companies. The last session of Congress was an active one on the legislative front. . . . The association's batting average was good. . . .

Federal-Aid Highway Bill

After the expenditure of much time and effort by our association, state associations and cooperating utility groups, when the 1956 Federal-Aid Highway Bill (H.R. 10060) was enacted, it contained provisions to reimburse telephone companies and other utilities for their facility removal costs subject to the qualification to be mentioned a little later in this report. . . .

Reimbursement by the federal government will be made only in instances in which the state practice is also to make it. When the legislation was under debate, it was stated on the House floor that there are 42 states which do not reimburse. This means that in those states implementing legislation at the local level will be required to make the federal reimbursement provision effective. . . .

(See report of Hugh A. Barnhart, chairman of USITA Committee on Highway Relocation costs, presented on other pages of this issue, for further details.)

FCC Bill on Consolidation Cases

That hearings will be held by the FCC in telephone merger and consoli-

dation cases when interests of the Independent industry are considered to be at stake, is assured by language incorporated in a bill which became law with Presidential approval on Aug. 2, 1956.

A bill, S. 1456, was sponsored by the FCC in the interest of making it entirely discretionary with the commission whether a hearing should be held in any case involving acquisition of one carrier by another. The general objective, that of saving expense by avoiding hearings in uncontested consolidation cases, was meritorious. . . .

At congressional hearings on the bill our association requested that a hearing be made mandatory before the commission, whenever requested by a telephone association or a telephone company. The commission did not oppose the request; in fact, it supported it.

Left to right: G. M. Thompson of Southern Pines, N. C.; Earl D. Pitt of Washington, D. C.; R. F. Lucier of Warsaw, Ind.; A. J. Falk of Washington, D. C.; Francis X. Welch, Washington editor of TELEPHONY, and F. S. Barnes of Rock Hill, S. C.

Both the Senate and the House also acceded to our request and at the same time made a hearing mandatory whenever requested by a state commission or local governmental authority. It was in this form that the legislation was finally enacted and given Presidential approval.

Switchboard Operator Exemption

Hearings before a Senate Labor Sub-Committee on bills proposing to wipe off the statute books one or more of the 13 exemptions in the Wage-Hour Act were begun early in May but suddenly postponed later in the same month. . . . The repeal of the switchboard operator exemption applicable to exchanges with fewer than 750 stations was proposed along with the repeal of other exemptions. . . .

When later afforded an opportunity to file written comments for the printed record our association filed a statement expressing unalterable objection to repeal or modification of our exemption. . . .

Repeal of our exemption would jeopardize the very existence of many small Independent telephone companies. Repeal would also be harmful to the small units of our large multi-exchange operations. Although dial conversions are going forward with rapidity all over the country, it will be 12 years at the present rate of progress before all Independent exchanges with less than 750 stations are converted. . . .

$300,000 Securities Exemption

Although, according to records of the Securities and Exchange Commission, the $300,000 securities exemption permitted by existing law has not often been availed of by Independent companies it is important to the companies that have taken advantage of it. This is the reason our association has opposed repeal of the exemption as proposed by a bill introduced by Congressman Bennett (R., Mich.).

Notwithstanding fairly full hearings, Congressman Bennett was unable to enlist appreciable support for his measure. Later in the 1956 session he took another tack, introducing a new measure, H.R. 9319. This proposed to make civil liability provisions of the act applicable even to securities issues under $300,000. Our association expressed opposition to such legislation, asserting it went far toward emasculating the present exemption and asking that if the bill were to be given approval it carry an exemption of the securities of telephone companies and other utility companies subject to public regulation. The congressman won a favorable report on his measure from the House Interstate and Foreign Commerce Committee, against the formal objection of the SEC; but the bill made no further progress and died with the adjournment of Congress.

In the Committee report the following statement was made relating to Independent telephone companies:

"Specific reference is made to the communication industry because the Independent telephone companies have taken a strong position in favor of the Section 3 (b) exemption, and, in fact, have urged that the $300,000 limitation now in the law be increased to a much higher figure. The facts show that telephone companies have made little use of this exemption in the flotation of their securities."

Congressman Bennett is interested in protecting the public against penny uranium and other mining stocks but at the same time has been adamant in refusing to make a distinction between spurious issues of stock of irresponsible corporations and other issues. The SEC realizes that some major abuses of the $300,000 exemption have been practiced, but has taken the position it can adequately protect the public interest by administrative policy. It is promising to do this by a consolidation of its Regulation A and Regulation D.

Our association has asked it to differentiate in its regulations between telephone companies and other public service corporations, and those not subject to public control. The commission also proposes to deny registration to any company failing to meet the test of a "seasoned" firm, one that has had no net income for the past five years.

Registration of Over-the-Counter Securities

When Congress adjourned last summer a bill to regulate over-the-counter security transactions was resting with the Senate Banking and Currency Committee. Taking the form of an amendment to the Securities Act of 1934, the bill would apply to corporations with more than 750 stockholders, more than 1 million dollars in stock outstanding and more than 2 million dollars in assets. It would require periodical financial reports, compliance with SEC proxy rules, reports of trading in the firm's stock by officers, directors, and shareholders with more than 10 per cent of the stock ownership, and make the stock subject to the Federal Reserve Board's margin requirements.

Hearings were held during the fall of 1955 but otherwise no progress was made. Senator Fulbright has stated the bill will be given early priority at the session of Congress to convene in January 1957. He said its terms would apply to about 1,200 companies.

The great body of securities of Independent companies are not listed on

stock exchanges but are the subject of over-the-counter transactions. If the Fulbright bill should find its way to enactment, it would bring the securities issues of many of our companies under SEC control.

Bad Coin Problem

I regret to report that the House Judiciary Committee did not hold hearings on the bad coin problem during the 84th Congress. H.R. 7170, introduced by Congressman Hyde (R., Md.), accordingly died with the adjournment of Congress and will have to be reintroduced if it is to be considered at the next session. . . .

The Hyde bill proposed to extend the penalties which are now applicable to spurious coins of 1 cent and 5 cents to bad 10, 25 and 50-cent pieces. . . .

Tax Legislation

No serious effort was made during the last session of Congress to deal with the heavy load of taxation borne by American business and people. . . .

The 52 per cent corporate income tax rate is still the law, the high personal tax rates are still on the statute books and the discriminatory 10 per cent excise tax on telephone calls is still being collected. The following developments on the tax front may be noted:

(1) A bill containing 80 recommended changes in the law was introduced July 9, H.R. 12298, by Congressman Forand (D, R.I.). . . . Introduction was mainly for study purposes. Some of the technical changes proposed would iron out uncertainties respecting application of the excise tax on communication service. . . .

(2) A directive has been given to the staff of the Joint Committee on Internal Revenue Taxation to make a study of 15 separately enumerated abuses of the tax structure. The directive was given by Chairman Byrd (D, Va.). None of the items listed relates directly to the level of corporate or personal income taxes. One, however, calls for a "review of the present excise system with a view towards removing inequities."

(3) The House Ways and Means Committee has set up a bi-partisan subcommittee to make a comprehensive study of the entire field of internal revenue taxes and the problems and operations of the Internal Revenue Service.

(4) Hearings will begin Nov. 26 before the Mills House Excise Tax Subcommittee on the subject of federal excise tax policy, rates and technical and administrative problems. Communications and transportation taxes are third on a list of nine excise tax classifications upon which testimony will be taken.

Legislative Box Score Over Years

While legislative activity is not the principal work of our association, it must be evident that with our growing interests as an industry it becomes increasingly necessary to keep abreast of legislative proposals that might have a bearing upon the welfare of Independent telephone companies and the subscribers to the service they render. The association's batting average over the years upon bills with which it has concerned itself has been good. Largely from memory I have prepared a summary of the important bills to which our association has addressed itself:

(1) The Willis-Graham Act in the early 1920's relating to governmental approval of Bell purchases of Independent property.

(2) Section 2(b) (2) exemption in the Communications Act of 1934.

(3) Enlargement of the Section 2(b) (2) exemption in 1954.

(4) Switchboard operator exemption in 1939.

C. S. Snyder (left), USITA assistant secretary and R. C. Reno, editor of TELEPHONY.

(5) Enlargement of the switchboard operator exemption in 1949.

(6) Resistance to legislation to increase the minimum wage, contributing to the delay in the passage of such legislation in 1949 and 1955.

(7) Statute of limitations governing the bringing of suits for wage arrearages under the Wage-Hour Act.

(8) Salutary amendments to REA telephone lending bills protecting private enterprise in the telephone business (1949).

(9) Anti-slug bill enacted in 1934.

(10) Successful resistance in the early 1950's to features of the so-called antigambling bill which, if enacted, would have gone far toward destroying the intimacy and secrecy of telephone communication.

(11) Exemption in the wartime Emergency Price Control Act of the rates of telephone companies.

(12) Seven per cent credit allowed telephone companies in the excess profits tax bill in 1950, compared with only a 6 per cent credit allowed other utilities.

(13) Successful resistance (1948) to bill providing for fractional coins, which, if permitted, would have raised havoc with telephone coin boxes.

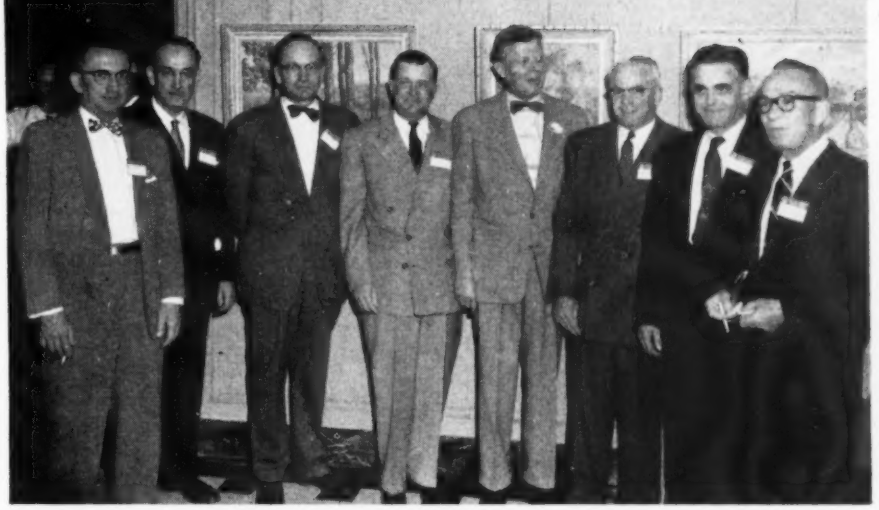
(14) Successful resistance (1954-56) to bill proposing repeal of $300,000 securities exemption in Securities Act of 1934.

(15) Reduction in telephone excise taxes in 1953.

(16) Successful resistance to D'Ewart Bill in 1952, which, if enacted in form introduced, would have permitted government-owned telephone service under certain circumstances in areas adjoining national parks.

(17) Inclusion of utility facility removal reimbursement provisions in 1956 Federal-Aid Highway Act.

(18) Amendment to Communications Act in 1956 requiring hearings in merger and consolidation cases when requested by "an association of telephone companies," "a telephone company" or



Left to right: H. H. Welch of Nortonville, Kan., J. J. McGrath of Topeka, Kan.; E. L. Evenson of Dallas, Pa., A. O. Perry of Cortland, Cal.; Emmett Swanson and L. F. Shepherd, both of Erie, Pa.; Fred S. Florance of Monroe, N. Y., and L. T. Hayner of Chicago.

Left to right: K. L. Dally and Toral Duckett, both of Lincoln, Neb., and J. L. Van Horn of Grinnell, Ia.

a state commission or local government authority.

Yes, the USITA has been singularly successful in its efforts to persuade Congress of the merit of arguments advanced in support of or in opposition to proposed legislation. There is probably no other trade organization in the United States which has a record as good.

Operator Learner Regulations

Well in advance of the effective date of the new $1.00 minimum wage on Mar. 1, 1956, our association took steps to obtain revisions in regulations of the Wage and Hour Division governing the employment of learner switchboard operators at non-exempt exchanges in the Independent telephone industry. The new regulations were issued early this year.

With an increase in the minimum wage already determined by Congress, it was inevitable that the learner rates should go up. The amount of the increase in the new rates set by the Wage and Hour Division was larger than our witnesses asked, but lower than advocated by the labor unions. At the same time we were able to obtain revisions in the new regulations which permit application of the learner rates to exchanges having up to 3,000 stations. The previous limitation was 2,000 stations.

White Collar Regulations

Our association presented evidence at hearings before the Wage and Hour Division on the white collar regulations, those relating to salaries of executive, administrative and professional employes. To qualify for exemption from the wage and hour provisions of the law, employes in these categories must receive minimum salaries and meet other tests set up by the Wage and Hour Division. Our witness outlined economic conditions in the Independent industry and expressed the opinion that any increase should not be greater than 10 per cent. Labor union witnesses advocated substantial increases in all grades.

Revised regulations have not yet been issued but are expected momentarily. The existing minimum salaries are: Executives, $55 a week; administrative and professional employees, $75 a week.

FCC Accounting

During the past 12 months we have dealt with the following accounting matters, among others, arising under the FCC's powers:

(1) Our association filed favorable comments with the Commission upon proposals to amend Part 31 of the Uniform System of Accounts relating to simplified procedures with respect to accounting for plant under construction. The Commission approved the proposals in question last June in Docket No. 11548.

(2) Our association filed comments with the commission advocating the charging of certain charitable contributions as operating expenses. Some state commissions and the Accounting Committee of the NARUC expressed opposition to the accounting proposal involved. The commission last March in Docket No. 11402, rejected the industry's request.

(3) Our association last July submitted comments to the commission upon a Notice of Proposed Rule Making dealing with cradle-to-grave treatment of station apparatus, wire, small PBX's and TWX equipment. In a report and order adopted on Sept. 19 the Commission adopted the proposal with permission to companies to put the amendments into effect on Jan. 1, 1957. The commission understands that many telephone companies intend to take advantage of the Jan. 1, 1957 optional date. It would appear that benefits would accrue to companies, regulatory bodies, and the public if all Class A and B telephone companies would arrange to make the necessary changes in their accounting procedures and practices effective next Jan. 1.

Matters Before FCC—Radio

Our association has also taken a lively interest in several radio frequency allocation problems where the interests of Independent telephone companies were affected.

(See report of C. H. McLean, chairman of USITA Radio Service Committee, presented on other pages of this issue, for further details.)

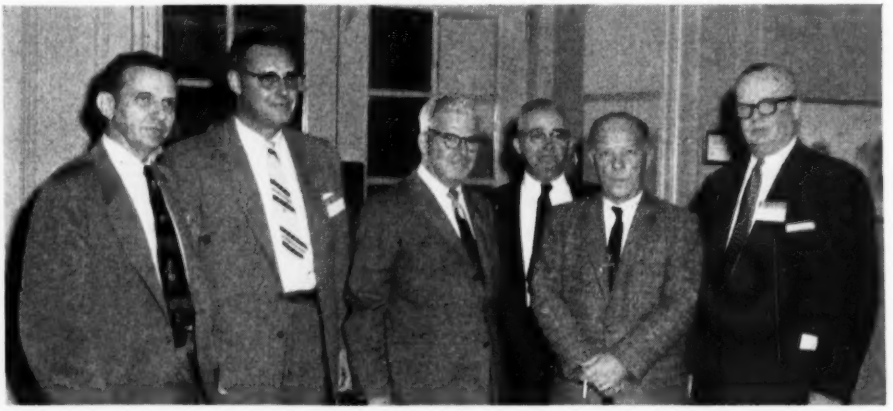
Internal Revenue Service

We have also found it necessary to make recommendations to the Internal Revenue Service respecting tax regulations. For example:

(1) Our association in July filed a statement advocating the adoption of Form 720 used in reporting federal excise tax collections. The changes if adopted would relieve telephone companies of certain accounting procedures in reporting federal excise tax collection on telephone service.

(2) Our association in June filed a statement advocating the adoption of proposed revisions relating to depreciation for income tax purposes under Section 167 of the Internal Revenue Code. . . .

(Please turn to page 104)



Left to right: H. H. Butler of Dallas, Pa.; A. D. Scripture of Everett, Wash.; Fred MacGougan of Monrovia, Cal.; L. W. Hill of Tarboro, N. C.; N. L. O'Donnell of Everett, Wash., and D. T. Strickland of Brownwood, Tex.

Toll Compensation Problems A Look Ahead

By W. R. JARMON
Chairman
USITA Toll Compensation and Settlements Committee

IT WAS indeed gratifying to report last spring, on behalf of the (USITA) Toll Compensation and Settlements Committee, that negotiations with representatives of the Bell System will result in an increase of approximately 11 million dollars a year in compensation to the Independent companies, when fully adopted. This figure is based upon estimated 1956 traffic volumes, and relates to interchanged message toll telephone business.

Completion of studies for the many exchanges selected at random was effected by united effort on the part of the entire telephone industry, and provision of the information armed the committee with facts and figures which were indispensable in finalizing the negotiations. Not only should appreciation be expressed to the industry as a whole for its support and cooperation, but special thanks should be extended to the sub-committees and individual companies which carried the full burden of responsibility for conduct of the studies.

I am also particularly gratified to observe that an increasing number of companies are making their own toll studies. This is certainly a move in the right direction, inasmuch as the average settlement schedules are not designed to meet every specific situation. They can, however, effectively serve as a means of settlement for companies not prepared to negotiate on an individual study basis. In those cases where there is indication that these average schedules do not adequately cover the costs of the Independent company in handling the interchanged business, it would definitely appear in the best interest of the company to institute its own study. Now that the new schedules have been established, individual companies are placed in a much better bargaining position to negotiate their own settlement contracts.

Most problems being experienced by the telephone industry seem to be associated with "growing pains," and inflation. Growing pains, although sometimes distressing, are a welcome sign of approaching maturity and stature. Inflation appears to be an accompanying manifestation of the times in which we find ourselves as this nation takes a more and more dominant role in world affairs.

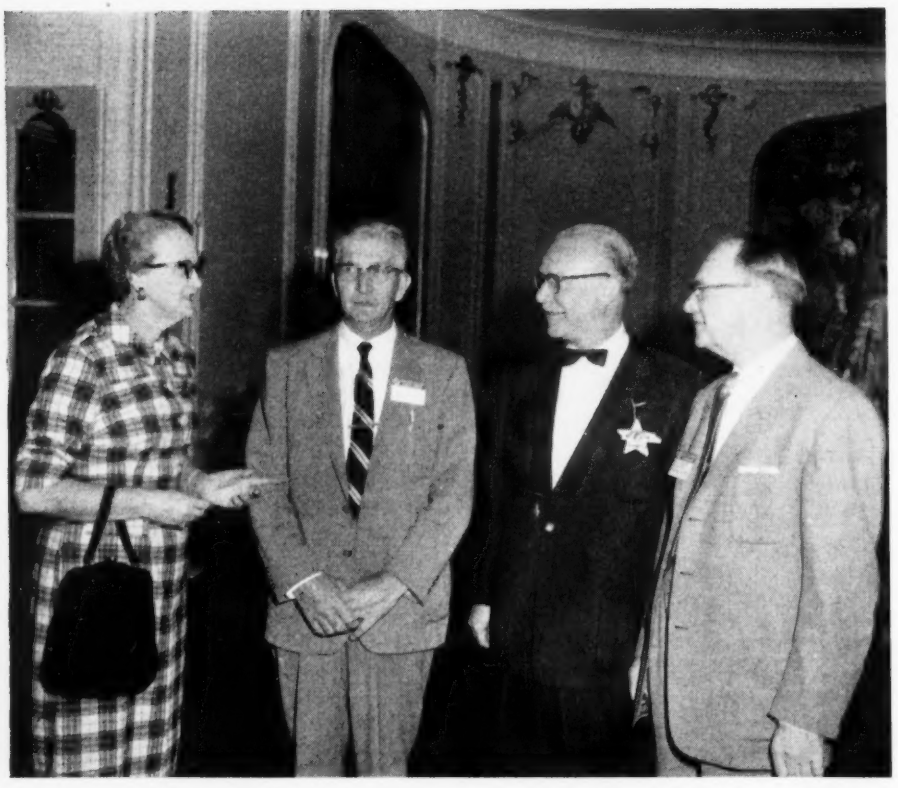
Everyone in the telephone industry should be gratified that there has been a constantly expanding market for more and better telephone service. Despite extraordinary efforts in some areas to keep up with demands of the American public, held applications for service have remained generally at a high level since the end of World War II.

We are well aware of the fact that the number of telephones in the United States has more than tripled since the Toll Compensation Committee was formed in 1936, and we must keep in mind that each of these additional telephones in service is a potential point for origination and termination of toll messages. In this connection, the number of long distance messages has increased even more rapidly. During the same period the Independents' share of annual revenue from interchanged toll business has climbed from 12 million dollars to about 153 million dollars. This gives some idea of what is in store for us. Such additional business is, of course, most welcome, and it is exciting to contemplate the future when we hear that most economists foresee no immediate diminution in past business acceleration.

Population is perhaps the most important factor in measuring future growth. Conservative estimates place our population at 190 million by 1965 and 220 million by 1975. The effect this population growth will have on our industry is obvious. Not only is the population growing in total, but it is constantly shifting away from the larger industrial and trading centers. Much of this diffusion is into the two-thirds of the geographical area of the United States which is served by Independent telephone companies. It has also had a tendency to increase the size of the area throughout which our subscribers have economic, social and political interests. In fact, telephone service has become the "nerve system" of our nation, and has contributed substantially to the "shrinking" of state, regional and national boundaries in this era of rapid communications and transportation.

The need for long distance service is ever increasing, and the industry is constantly providing improvements in service which make it easier and more convenient for customers to utilize its facilities. We are on the threshold of the transistor age which promises unlimited horizons through electronic switching and other improvements in handling telephone traffic. We are mechanizing, we are providing better and better local and long distance services, and we are designing our equipment with an eye to sales appeal. Not only can people be connected to more telephones today, but they are constantly finding it easier and more pleasant to take advantage of this opportunity.

All of these services must be sold. Merchandising is one of the most important tools currently utilized by progressive telephone management. Multiple telephone installations, higher grades of local service, long distance service, PBX services, automatic answering and recording devices, private lines, colored sets, and many supple-



Left to right: Mrs. R. H. Miller of Sunman, Ind.; Mr. Miller; L. F. Roberts, USITA director of information, and J. M. Roberts of Gallatin, Mo.

mental equipment items are available for sale. A terrific revenue potential exists in the sale of these items, and, naturally, all additional sales tend to increase toll business. Long distance service is no longer merely a promotional item. It has become a substantial part of the over-all business of every telephone company.

Much has been said about inflation during recent years, and it appears that inflation will be with us at least for some time to come. Inflation in the past has brought with it high-cost plant and increased operating expenses. It now appears that we are in the throes of another round of substantial upward price adjustments.

Also, apparently in the offing are further revisions in the minimum wage laws, possible elimination of the 750-station exemption, continued high-cost money and no letup in taxes.

True, this general situation faces all businesses, but most businesses are not subject to the same attrition in earnings as experienced in our industry, and we cannot afford to let it adversely affect our operations. In this connection I should mention we are long overdue in finding an effective way of solving the "settlement lag" problem.

The standards of service for the telephone industry must meet the needs of our customers. This takes not only aggressive management and planning, but also money and more money. It seems imperative that toll compensation keep abreast of rising costs and changes in operating conditions. The need for upward adjustments in toll compensation applies equally to settlement arrangements for private line services, extended area service, foreign exchange service, TWX service and mobile radio services. Independent companies should make sure that they are receiving just payment for services rendered.

While negotiations such as those recently completed were conducted on an industry-wide basis, individual companies should take every reasonable step to insure that the new schedules result in fair compensation for their own participation in the interchanged business. One of the best ways to insure this objective is to be fortified with facts and figures arrived at as a result of individual company studies. Good records are important to any such study. These studies are hard work and time consuming, but I know that in most instances they have paid off in increased dollars—and dollars maintain good plant, pay wages, and give a return on money invested in our business.

Many of the companies have reviewed the new schedules and have stated they are quite satisfactory. Other companies have indicated just the opposite. I am firmly convinced that continued attention to toll settlements by every Independent company will be well worthwhile. The Washington office of the USITA is prepared to give helpful advice to individual companies concerning their compensation problems, and the committee will continue to pursue this matter diligently on a national basis. A qualified full-time toll engineer has been retained by the association to assist in the review of settlement arrangements and practices and in the conduct of toll compensation studies. His services should be of real value to all of us by providing the procedures and background so necessary in accomplishment of our objectives.

In order to remain healthy, our industry must keep settlement arrangements abreast of the times. Independents should not be expected to subsidize interchanged business with their own exchange service revenues. We should obtain every dollar to which we are entitled from our interchanged traffic. The Independents should be *particularly independent* in this field, and since it has been made eminently clear that we must prove our needs, let us do so.

The future of our dynamic, rapidly growing industry looks bright under free enterprise. Never were the opportunities greater for alert and aggressive telephone management. Settlements are one of our primary responsibilities, and it is essential that our industry be united and ever vigilant in this most important program.

Left to right: W. C. Dillon of Van Nuys, Cal.; K. W. Bresin of Askov, Minn.; H. W. Meyer of Erie, Pa., H. J. Vrooman of Marion, O., and W. J. Holladay of Fayette, Ala.

Economic and Political Implications of Atomic Energy

By LT. GEN. LESLIE R. GROVES, USA Retired
Vice President
Remington Rand Division
Sperry Rand Corp.

MANY people still do not seem to realize how rapidly our world has shrunk in this Atomic Age. I am sure that you who have taken an active part in the remarkable advancement of telephonic communication have long recognized how much modern developments, such as, supersonic airplanes, guided missiles, nuclear powered vessels, and radio and other forms of communication, have brought nations, once many days apart, into close proximity with each other.

The current Suez situation is an example of this. The nations and the peoples of the world felt immediately the concern of a critical situation, and the resulting reactions have reached far beyond the Mediterranean.

It was definitely not a simple localized Middle Eastern disturbance as it would have once been. The residents of Chicago, New York, San Francisco, London and Melbourne, are now such close neighbors of Nasser that they react within hours from each new convulsion in the Middle East. And yet, the very existence of the Treaty of Ghent, providing for the ending of the War of 1812, was unknown 15 days later to the contestants in the Battle of New Orleans, where Andrew Jackson inflicted such a terrible defeat on the English.

We will experience more and more of this shrinking of distances as the years go by. And, we will find that our world position and our domestic conditions will determine whether we will have a world of peace, or one of destruction, in the Atomic Era, which is now at our doorstep.

We can well afford to pause a little and take a look at the economic and political implications to the United States of this new force—atomic energy.

No one can separate the economic from the political, neither can he isolate the political from the international. Actually, all three of these elements are so intertwined that we must consider them together; we cannot do so individually.

There is no longer doubt in the minds of anyone but that all international relationships, present and future, were rudely shocked by the explosion of that first A-Bomb on Hiroshima. Those of us within the Manhattan Project who were aware of the general expectations had the feeling that our development of nuclear energy would not only affect our economy and hence our domestic political situation, but that it could well revolutionize the very foundations upon which international relationships were based.

We hoped that this newly found power would become a new servant for man in his peaceful pursuits and not simply a force with the single purpose of destruction. Many of us, particularly those with military background, also hoped that it would make the waging of war almost, if not entirely, impossible.

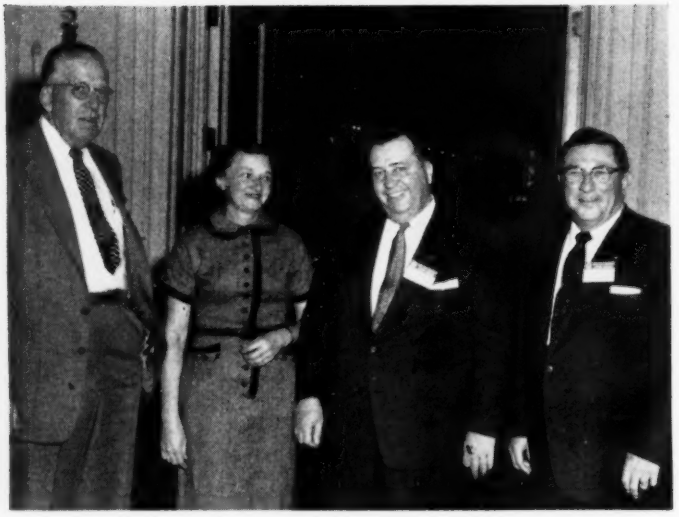
Secretary of War Stimson, with full understanding of President Roosevelt's thoughts on the matter, gave me, in the Fall of 1942, a very simple but comprehensive objective. It was: Through the development of the atomic bomb, to bring the war to a close sooner than would otherwise be the case, and thus to save the lives and health of many uniformed Americans. Even so, during the course of the development, we found opportunities from time to time to consider the ways in which we could develop atomic energy for application to peaceful uses and to consider its effects on the international scene.

The story of the bomb's development and use and the quick ending to World War II, and the resulting peace that it brought us, is now history. It is also generally realized by the thinking people of the world. And, I think that the fear on both sides of the Iron and Bamboo Curtains of what this weapon might do has kept many of the postwar frictions from exploding into threatened or even world conflict.

Unfortunately, and due largely to the Russian attitude, mankind's thoughts about atomic energy so far have been largely concerned with its negative side —destruction or potential destruction. Because of this, peaceful, constructive uses have developed more slowly than they should have but they have developed, and in fact some are already at work, and others will be before many years go by.

A meeting is now going on which, if the millennium should come and Russia should decide to cooperate with the rest of the world, could greatly influence the lives of all men—those now living and the future generations as well. I refer to the 80-nation meeting at the United Nations which will debate and consider the "atoms for peace" project which President Eisenhower launched some time ago.

Whether this meeting at the United Nations will be as futile as all of the previous meetings on this general subject, as well as most of their other meetings, only Russia knows. The draft agreement before the conference calls for an atoms-for-peace agency. The agency, though "associated with" the United Nations, would be self-policing and free of the UN big-power veto. This provision will, unless the Soviet policy changes definitely, preclude any hope of agreement. It was the Russian implacable dislike for the elimination of the veto and for the right of inspec-



Left to right: F. B. Twigg and Mrs. Twigg of Lansing, Mich.; T. C. Thomasson of Lancaster, S. C., and F. B. McHenry of Jefferson City, Mo.

tion that prevented the original Baruch proposals from having any chance of adoption in the early atomic discussions in the United Nations.

The attempts of the United States, with its initial overwhelming advantage in the atomic field, and with the concurrence and support of Great Britain, Canada, and Belgium, and other nations as well, to bring about a just and a lasting solution to the international atomic problem beginning with the Baruch proposals in 1946, should always be a source of pride to us all.

The failure to achieve success can be laid at the door of Russia and at the doors of those who framed the unwieldly and unrealistic procedures of the United Nations. It was clear then, and it is clear now, that no intelligent person or nation could honestly object to or suspect the American aims in the preceding talks, nor can they do so now in the present atoms-for-peace proposals.

However, even while this meeting to discuss nuclear energy is going on, important advances in atomic knowledge are being made throughout the world and many of these as well as the sum of them will have an impact upon many nations, including our own.

Early this month came the announcement that the first of France's series of five electricity-from-atoms plants should be producing power by the end of 1959. In France, atomic material makes it possible to construct a plant many miles away from coal or petroleum supplies hydro-power to electrify the region. Low-priced electricity is expected for this region of Avoine.

When all five of these plants are completed, the French people will find that, as has always happened with us when we have increased our supply of electrical power, there will be a considerable increase in the number of electricity users. Another part of the picture is the probability that the present problems involved in the importation of foreign laborers will be decreased because of decreased needs in the French coal fields.

Across the channel the British have announced that their first atomic power plant will go into operation in the not too distant future. The Soviet has announced great plans and expectations for numerous large-scale atomic power plants—how much truth there is in the announcements, no one outside of Russia knows and I doubt if anyone inside does either.

In this connection, we must not lose sight of the fact that the United States has had abundant low-cost electric power for so long that we have come to accept it without realizing that most nations in the world have had to regard electric power as a high-priced luxury. Also, because of our present riches in this regard, there has not been the pressure of necessity to expedite unduly the construction of such plants. Yet, as our insatiable demand for power continues to grow, we too, will find relief through the medium of atomic energy.

Many smaller and many less advanced nations are also hoping to obtain atomic power plants as soon as possible, and this urge to obtain atomic power could have major significance in the cold war, as well as in the contest for world trade. If the United States does not for any reason continue to keep its leadership, it is conceivable that we could suffer a serious loss in international prestige and influence as a result.

It is certain that whatever happens on the international stage with respect to nuclear energy will cause a corresponding impact upon our own political scene. If the British, French or Soviet Union manage to build enough atomic power plants—I am sure that they cannot carry the gigantic financial burden for this without our aid—it will not be long before the additional power will cause an increase in their productive capacity and thus will affect our world markets. Not much imagination is needed to foresee the resulting turmoil on our political stage.

If we relinquish our leadership too rapidly in both the peaceful uses of atomic power and the military uses, we will be unable to hold back those nations bent upon our destruction and the end of a peaceful world. Our aim should be to retain that leadership, at least until such time as all the world realizes that war must not be.

Personally, I am certain that we will maintain our leadership in the nuclear energy field. The challenge inherent in atomic power is one that the United States can and will continue to meet effectively and efficiently. It is certainly doing so today under the guidance of the present Atomic Energy Commission.

I think, however, that we must keep a sharp eye on those domestic politicians who bend their efforts toward keeping private industry out of the atomic field. The best way to keep our leadership in this area is to rely on private industry to carry on such power programs as are practical and economical in terms of our present power needs and resources.

Left to right: H. D. Fargo Jr., Francis X. Welch and A. J. Stults, all of TELEPHONY.

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Certainly, a big government construction program, as was proposed in the last Congress and has been mentioned in the present political campaign, would inevitably put atomic development in the middle of the age-old public-private power fight. And, it would be a backward move which might well lead to disaster. I do not have to discuss the relative merits of government versus private utility operations before this audience.

It is true that at the present stage of technological progress no one can build a plant that will produce power as cheaply as the more conventional facilities. However, while the power from coal, petroleum and hydro plants, is sufficient generally to meet our present demands, we will have to depend upon nuclear energy when we come to the future requirements of the great expansion programs that industry and business, as well as our increased population will demand.

Many of you have probably wondered just where this new age of atomic energy and power development is going to end, and especially where you and your industry are going to fit into the new economic possibilities. I will not try to make long-range predictions but rather to give you an idea of the present situation and a prediction of the more immediate future.

A moment ago, I pointed out the strides that some European nations were making in building atomic power plants. I also mentioned the economic impact of all this upon this nation, in terms of production, imports and exports from foreign lands.

Here, in the United States, at least 15 nuclear power installations of various types have been seriously proposed. They range in size from a few thousand to over 200,000 kilowatts. The expected dates of initial operation begin in 1957 and all of them should be in operation by 1962 or 1963. All of these plants will be experimental in one or more ways. But, out of them, will come new and better designs and, I hope, sound competitive plants. These future installations will mean higher standards of living for all free Americans. They will mean better jobs for some and new careers for many of our younger citizens.

Not long ago, the nation's press, radio and television featured a town that for a short time was lighted and serviced by the power generated by a small atomic pilot plant. This power was a by-product of a larger nuclear operation, but it was power that enabled the housewife in that town to fry eggs, boil coffee, and run her vacuum cleaner. But, certainly it was not economical power.

Left to right: R. J. Fegan of Junction City, Kan.; H. A. Barnhart of Rochester, Ind.; J. B. Boylan of Rochester, N. Y.; R. S. Griffin of Sherman, Tex.; Walter Dakin of Madison, Wis. and F. E. Bohn of Ft. Wayne, Ind.

We already know how to harness nuclear energy for the generation of useful electrical power. But, as we all know, it will not presently compete economically with our more familiar sources of power. But it will not always be thus. The costs of nuclear power will go down and the fuel costs of competitive sources of power will go up.

Our atomic power development picture was started with large broad strokes which gave us a picture of the future, but the delineation of details and time was fuzzy and vague. Frankly, I think the big picture is still blurry, but here and there the small, sharp brush strokes are beginning to show the shape of the future to come.

When I was asked back in 1946 when atomic energy would be available for industrial use I thought it would be a matter of decades before truly competitive power would be generally possible. My answer today to the same question would be, not before 1965 but probably in the early 1970's.

Vivian Ryden of TELEPHONY watching Mayme Workman of Springfield, Ill., make a recording in German to be sent to her relatives overseas.

But, it does seem to me that there is little value in attempts to speculate about the exact dates in the future of nuclear energy. There can no longer be any doubt but that this new found force will greatly change our world.

You are all familiar with the emphasis and concentration on the power possibilities of the atom. But many people have found economic interest in other uses for this energy.

Actually, not too many months after the conclusion of the war, we began the shipment of radioactive isotopes for research use in hundreds of institutions throughout the United States, as well as to many in foreign lands. Since then, tens of thousands of these isotopes have been used for the benefit of humanity in thousands of research efforts in the United States and abroad.

A few days ago, an official of the New York State government discussed the future for that state in connection with the nuclear power plant that the Consolidated Edison Co. is building. He brought with him samples of carrots, peas, meat, and other food items, all of which had been subjected to radiation. It was pointed out that this method of food processing would preserve the food indefinitely without refrigeration.

The Army has been conducting experiments of this nature and has processed meat that will not spoil, despite the lack of refrigeration. The meat changes its color, but is claimed to be unimpaired in its other qualities. Carrots do not change color in this treatment, but peas do lose color. In all cases all foods retain their nourishing

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Report of USITA Committee on Highway Relocation Costs

By HUGH A. BARNHART
Chairman

WHEN the 1956 Federal-Aid Highway Bill was approved by President Eisenhower on June 29, it contained provisions authorizing reimbursement to telephone companies and other utilities of 90 per cent of the costs incurred in moving their facilities. This, however, was subject to a condition imposed by a so-called states-rights amendment, to which this report will later make reference.

This legislative victory was the culmination of several years of effort on the part of our association, other affected utility groups, and the National Association of Railroad and Utilities Commissioners. It could not have been accomplished without the cooperative activity of all groups. Back of their interest, of course, was the interest of the telephone subscriber or other utility user, who it was recognized would have to bear the burden of removal costs in the form of higher rates, in the absence of legislation.

The new highway program, approved by Congress and the President, is the biggest public works project in United States history. It will cost at least 50 billion dollars in the next 13 years—maybe more. Plans call for 41,000 miles of new interstate highways linking major cities, nearly 200,000 miles of state highways, and 508,000 miles of rural roads, for a grand total of about 750,000 miles. This means that, at long last, the traffic jam may begin to break up.

Already the Department of Commerce and the Bureau of Public Roads have started work on planning a gigantic interstate highway system. Many states have announced they will meet federal requirements and build these dual lane roads. Next year will see construction of many thoroughfares getting under way.

The fight to have utilities reimbursed for costly relocations of their various facilities began four or five years ago. The Senate in 1955 passed the Gore Bill providing for reimbursement of facility removal costs on a 50 per cent basis, subject to a limitation of 2 per cent of the cost of individual projects. Later that year, Congressman Fallon introduced a highway bill in the House with a similar 50 per cent reimbursement feature. Due to many conflicting interests, and the opposition of the trucking industry, the bill in its entirety was defeated. Before meeting that fate, the House rejected—by a 75 to 125 vote—the reimbursement provisions. They had been vigorously opposed by the state highway commissions.

At the beginning of the last session of Congress, Congressman Fallon introduced House Bill 8836 contemplating 40,000 miles of super highways and providing that the government should pay 90 per cent of the costs. To the surprise of the utilities, the reimbursement provisions were the same as those contained in the defeated 1955 bill. After hearings the bill, as reported to the House, became H.R. 10660.

After two days of House debate, the House passed the bill with its 90 per cent reimbursement provisions, but before doing so tacked on a so-called states-rights amendment. This amendment reads as follows:

"Provided, That federal funds shall not be apportioned to the states under this section when the payment to the utility violates the law of the state or violates a legal contract between the utility and the state."

When the House bill in this form went to the Senate, the upper branch accepted the House version but retained the 2 per cent limiting factor that was in the Gore Bill passed by the Senate at a previous session.

However, when the measure went to a conference committee to reconcile the differences between the Senate and the House, the 2 per cent limiting factor was stricken.

Therefore, in respect to the interstate system, 90 per cent of relocation costs will be defrayed by the federal government. On all other highways where a 50-50 arrangement prevails reimbursement will be on that basis.

However welcome federal legislation is, we must not make the mistake of regarding enactment of this program as a complete answer to the highway problem and as automatically insuring reimbursement to telephone companies and other utilities of facility removal costs. Far from it!

In its report to the House and Senate, the conference committee said: "It is the intention of the federal government to assume its proportionate share of relocation costs *whenever the state allows such costs.*" Thus, federal reimbursement can be made only in states which now make a practice of it. There are 42 states which do not reimburse, which means that enabling legislation to implement the federal law must be enacted in all but six states.

It is clear, then, that before our ultimate goal can be reached 42 states must follow through and pass laws providing for reimbursement. State telephone associations, member companies, and individuals must start working immediately if they are to get this vital job done in the coming sessions of legislatures.

The USITA and its Committee on Highway Relocation Costs already have shown the way by sending out to all associations a suggested model law, which with any necessary changes can be introduced in the general assemblies of the states involved.

A big job at the state level remains to be undertaken. I am confident it can be done. By constant continued effort, organization, and hard work—the kind telephone people are noted for—reimbursement can be achieved for all telephone companies.

Our Stake in a Dynamic Merchandising Program

By L. D. DENSMORE Chairman

USITA Merchandising Committee

IN FEBRUARY of this year President Merle Hale, with the approval of the USITA Executive Committee, appointed a "Merchandising Committee" consisting of Earle G. Bellamy of the Bellamy Telephone Co., Knoxville, Ia., Carl D. Brorein Jr. of Peninsular Telephone Co., Tampa, Fla., Theodore S. Gary of General Telephone Corp., New York City, R. A. Lumpkin of Illinois Consolidated Telephone Co., Mattoon, Ill., with L. D. Densmore of the Central Telephone System, Lincoln, Neb., as Chairman.

The duties of this Committee are:

To consider the general philosophy of telephone merchandising.

To consider the most effective methods and mechanics of selling telephone service.

To develop recommendations relating to the general subject for the information and guidance of USITA member companies.

While there has always been more or less active sales promotion within the telephone industry, the present concept of merchandising, in its broader sense, is a comparatively new field for the industry as a whole.

Within the past three years it became apparent to the Bell System that the more or less standard method of marketing their service left something to be desired. In its approach to the problem it called in the merchandising leaders from the top manufacturing and retail establishments and experts from outstanding advertising agencies. They obtained the best information that could be found with respect to the subject of merchandising. They were able, with the advice and guidance of the experts, to evolve a program of merchandising with which most of you are generally familiar.

Our Merchandising Committee held its initial meeting in New York City, as guests of the American Telephone & Telegraph Co. We were given a full day's briefing by top AT&T officials in the merchandising field. Many thanks to J. W. Cook, vice president in charge of merchandising, Robert C. Judy, Orla L. Moody, F. C. Smith, W. H. Doherty, John M. Shaw, and J. H. Page.

A wealth of information was made available to us with the assurance that AT&T and all associated companies of the Bell System would cooperate with and assist the Independents in the problem of merchandising. The results of market research and public opinion survey conducted by the Bell System will be made available through the associated Bell companies. The Bell System merchandising program has been most productive and is being accelerated. However, they would be the first to deny that their program is either all inclusive or a final result, but they would say it is a start in the right direction and one that must constantly be revised and improved as experience is gained.

The impetus of getting the program underway within the Bell System was from the top down. We Independents must start with our highest levels of management and work the program down through the supervisory ranks to employes who are going to make it a dynamic and effective effort.

In order to obtain first-hand information as to how the merchandising program is being implemented by the associated Bell companies, representatives of our Merchandising Committee visited Northwestern Bell Telephone Co., Illinois Bell Telephone Co., Chesapeake & Potomac Telephone Co. of Virginia, and Southern Bell Telephone & Telegraph Co.

These companies, along with all the other Bell System companies are making good progress in establishing modern merchandising methods. Each company visited was most cooperative in providing us with the details of the various phases of their respective merchandising activities. It would be most worthwhile if representatives of Independent companies will contact the Bell company with which they have connecting agreements and ask for a full briefing on the vital subject of merchandising.

Why should the Independent segment of the telephone industry spend time and money on a merchandising program, especially when we, in many locations, still have serious growing pains?

To begin with, we must realize that *a merchandising program is not a mere selling campaign.*

It entails research to determine not only the needs and desires of the public but the potentials of the market for long-range planning and development. It encompasses the creation of new desires. It includes expanding and enhancing the usefulness of the service. It requires the use of various agencies in the promotion of these ends. It requires the training of personnel to implement the program and conduct the sales work.

Finally, but of vital importance, is a continuing review throughout all phases of the program to insure an increase in the net income of your company.

What is telephone merchandising?

Merchandising is a lot of things. It is knowing and anticipating the com-

munication requirements of our customers. It requires that we fully satisfy those requirements and wants. It includes creating and satisfying additional desires. It involves the establishment of a service tailored to the needs of the user. It requires an understanding on our part, which we must pass on to our present and prospective subscribers, that telephone service from one telephone instrument in a home or business establishment is inadequate.

The communication requirements on farms are of the same general nature as that of business establishments. A farm is a business establishment. The greatest percentage of all service in the home and on farms today is from a single telephone instrument. Be it dial, common battery or magneto, the best that can be said for it is that it is as modern as yesterday.

Merchandising requires that we recognize the impact of the present highly competitive sales situation such as national promotion for a second TV set in the home. It contemplates that a second and third telephone in the home is easier to sell than the second family car. The two-car family is not at all unusual these days. Do all of the two-car families have two or more telephone instruments?

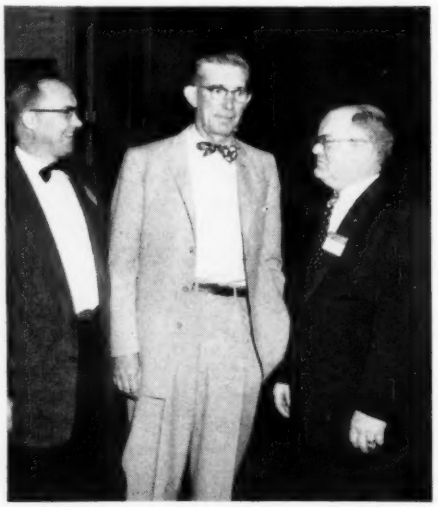
Is the telephone service which is being provided by your company adequate to meet the real needs of your subscribers? Is it comparable with the many improved and desirable adjuncts to a better way of life enjoyed by your subscribers.

The intensity of our merchandising activities must be varied among the communities throughout the areas we serve. It must be on a controlled basis, until we have cleared all unfilled orders and are able to add sufficient plant and the kind of equipment that will meet today's requirements.

A merchandising program can only be as effective as our ability to install and our manufacturers' ability to supply.

There are over 400 items of telephone equipment and service that can presently be furnished to our subscribers. You are familiar with most of the items.

Who among you cannot implement and promote an active program of merchandising with respect to the sale of additional telephones in the homes and places of business of present subscribers? Note we say "additional telephone" not an extension. In a nationwide survey one out of six interviewed expressed a desire for a second telephone. Color is a tremendous adjunct to the sale of the second and third telephone.



Left to right: Walter Pree of Minneapolis, Minn.; H. M. Smith of Neillsville, Wis., and Wyman W. Wiswell of Elkhorn, Wis.

Miss E. M. Hiestand of Madison, Wis., and R. W. Siemund of Benson, Ariz.

Who among you cannot increase his revenue by the further expansion of outdoor paystation service? The public has generously accepted this expansion of service and we know from surveys that the potential just hasn't been reached. Is it good business. When 1 per cent of your stations produce 8 per cent of your revenue it is good business to seek to saturate that potential. If your present paystation saturation is not 1 per cent of your stations, it should be.

Merchandising entails research, promotion and training. Research in testing markets and potentials will vary considerably with the size and location of your respective companies. A comprehensive survey, in order to know the requirements and desires of the telephone using public, could involve sampling of representative cross-sections by outside firms, thoroughly trained in this type of endeavor. Some companies will doubtless very properly employ this method.

Mr. and Mrs. Allan J. Rockafield of Menomonee Falls, Wis.

As for most of us—are we doing anything with the knowledge we now have?

Are we like the farmer who would not buy a book on "How to Farm" saying that to be truthful about it—he wasn't then farming as well as he knew how. Let's at least do as well as we know how with the knowledge we now have. As we progress most of us will make our own research survey by contacting our subscribers and learning from them their desires and requirements.

Promotion will consist of far more than using the usual "course of least resistance" advertising media. The kind of promotion required will oftimes be closely akin to public relations work, such as promoting equipment demonstrations and exhibits at fairs and club gatherings and placing equipment displays in merchants windows. With a good preventative maintenance and station inspection program, you not only have your foot in the door—you are in the house. What would these modern merchandisers give for such an opportunity.

We are unique and most fortunate in the telephone industry in that we have at hand a potentially effective sales force. Every telephone employe from the manager to the janitor is a potential salesman. We have only to train them. We need to equip them with information as to service available and rates and charges and then give them help as required on methods and techniques.

There are numerous sales aids and

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Building Recognition Through National Advertising

By CARL D. BROREIN
Chairman
USITA National Advertising Committee

IT HAS BEEN my privilege and pleasure for nearly four years to work with the members of the association's National Advertising Committee in formulating the national advertising program. Over these years many meetings have been held and much discussion has taken place, both inside and outside the committee, through which it is felt a very worthwhile and creditable advertising program for the Independent telephone industry has been developed. The committee has kept in mind this definition of its task:

To further the growth and prosperity of the Independent telephone industry and its individual companies—

(a) Through information disseminated by recognized media to the general public, to representatives of government, and to financial institutions, and

(b) To bring about a more complete understanding of the importance of the Independent telephone industry to the American communications system.

This purpose is a worthy one, I'm sure you will agree. It is for this same purpose that we combine our efforts and energies in the United States Independent Telephone Association.

National advertising was simply a new way to get at this purpose—when we first considered it almost four years ago. We have since learned a great deal more about it, and have seen for ourselves what advertising can do. What we have learned and observed has given us great and growing *confidence* in the soundness of this program—and in the wisdom of the early decision to pursue it.

An active program of national advertising has been in progress since May, 1954. Though it has many parts, it is chiefly a program of magazine advertisements.

Now what, specifically, are these advertisements designed to accomplish? Well, first of all, they are aimed at helping operating companies obtain and keep *adequate rates for service.* This they do by communicating the facts of our industry's size and composition, the quality of its services, its record of growth and how it contributes to community development, and its expanding future under the tenets of free enterprise.

These facts are not broadcast wholesale. They are carefully placed before a particular group of people. They are published in magazines we *know* are read by federal, state, and municipal regulatory officials, men in local, state, and municipal governments, legislators, journalists, civic leaders in your communities and throughout the nation—and by an especially influential segment of the "unclassified" general public.

On this point, I would like to quote in part from a letter from our good friend—and certainly a man well qualified to speak—Francis X. Welch:

"Confining myself to the sole question of the impact of these advertisements on public consciousness, so as to create favorable awareness of the existence and proper function of the Independent telephone industry as such, I can say without qualification that there have been tangible results. It just so happens that I had occasion only last week (in my TELEPHONY column of Mar. 24) to refer to recent hearings before the House Appropriations Committee in which the chairman of the FCC and others spoke very knowledgeably about the existence and number of Independent companies.

"They quoted figures which could have come right out of a USITA advertisement. I can recall—and I am sure you can, too—when former chairmen of the FCC and top officials would have had trouble remembering such information if they ever knew it. I also had occasion to refer to a recent CBS network news broadcast in which a commentator spoke very favorably about the job which nearly 5,000 Independent telephone companies are doing.

"In my contacts with people around Washington, including congressmen, administrative officials, and other key personalities, I have run across this recent awareness of the Independent telephone industry time and again. Only a few years ago I would have had to stop and explain what an Independent telephone company was to some pretty high placed people that I would have to interview around Washington. Today, they already know what I am talking about. The answer must be due to the USITA series.

"There are many Independent telephone companies which now have or will have service problems, or other public relations problems, in the future, which will bless the day that this advertising program has prepared a more favorable soil of public reaction

USITA Advertising Supported

One of the features of the USITA convention was a panel discussion on the association's nationwide advertising program, which has been running for the past two years.

Carl D. Brorein of Tampa, Fla., chairman of the USITA National Advertising Committee opened the discussion by presenting the report of the committee, which was followed by talks in support of the program by C. C. Pearce of Riceville, Ia.; H. M. Stewart of Cornelia, Ga., and Allan R. Stacey of Sunland, Cal. Comments of these speakers are presented on these pages.

in favor of Independent telephone company operations."

Secondly, our advertisements are aimed at helping us and our companies develop *present* sources of growth capital, and uncover *new* sources. They do this by communicating the importance of Independent companies to the nation's growing network of local and long distance telephone service, their sound position and great growth potential—the *opportunity* they represent. And, once again, they tell this story to some very important people—to investment counselors and brokers, to insurance companies, to bankers and the executives of lending institutions. To the financial press, and to a broad cross-section of industry.

From many of the smaller companies on up to the large Independents, we have heard again and again of the good work our program is doing on this vital growth capital front. Today, when money is tight, this is extremely important to all of us.

And, finally, these advertisements are aimed at gaining for our industry favorable, positive, lasting *recognition* by the public at large, as well as prestige for our companies and their employes.

They achieve this by implanting in their readers' minds the image of a large vigorous growing source of vital service — of benefit to every citizen, regardless of where he may live or how he makes use of the telephone in his daily life. To this end, our messages are aimed at the *hard core of public opinion*—the thought leaders in your own communities and every community in the nation. Through these influential and articulate men and women, the Independent telephone story will spread.

Each of us, I believe, can draw from his own personal experience over the past few years for many evidences of the steadily growing recognition we have achieved. I know I can, and I know I speak for a great many of you. But even more conclusively, we can point to articles and news stories now appearing with greater frequency than ever before in the nation's press and over the air waves—dealing with Independent telephone companies with considerably less timidity than ever before. They know us—and know we're here to stay.

Each magazine on our schedule has been carefully chosen to assure maximum coverage of the many groups of people important to us. Each advertisement as well, to the best of the committee's ability to judge it, is carefully prepared to get our messages across clearly and forcefully.

In an effort to do this job even better, we recently adopted a completely *new* series of advertisements at a meeting with the agency in May of this year. You have seen the first two in this series by now, I am sure. Stressing the theme, *"Independent Telephones Help You Reach All America,"* they began appearing in August in *Time* and *U. S. News & World Report*, as well as in TELEPHONY and *Telephone Engineer & Management*.

May marked the record "birthday" of our national advertising program. It found us facing the necessity for an adjustment in the over-all advertising budget. This reduction was made in order to free needed dollars to meet certain expenses encountered in other important USITA projects. However, the advertising program's fundamental character, fortunately, remains unchanged.

In the two years the program has been in effect it has brought the Independent telephone industry to the attention of a large part of the American public. From now on, the program should grow as the industry grows, with accumulated beneficial results becoming more and more apparent, thus contributing its share to the continued success of each of the industry's 4,700 Independent companies.

The association's National Advertising Committee again expressed its confidence in the program at a meeting on Sept. 25 when it voted unanimously to recommend its continuation through 1957.

We trust that the industry as a whole will find common ground in agreeing that the program is worth its cost of only a few cents annually per station.

What the Advertising Program Is Doing For the Independent Industry

By C. C. PEARCE
Farmers Telephone Co.
Riceville, Ia.

BETWEEN the Pacific and Atlantic Oceans and the borders of Canada and Mexico lies a vast area which has the finest communication system in the world. Two-thirds of this vast area is served by nearly 5,000 Independent telephone companies, with nearly nine million customers and an investment of 2½ billion dollars. At first glance it would seem that an industry with so many customers and such a tremendous investment would stand out and be recognized as one of the leading businesses in America.

Quite the contrary has been true. In days past a visit with a fellow passenger on a train, or plane, usually revealed that he had never heard of that segment of the communication industry. Rarely did the high school or college graduate give consideration to the Independent telephone industry when looking for employment, as he was interested in working for an industry that had prestige, and unless he lived in a town served by an Independent, he perhaps did not know that our industry existed.

In approaching the local bank, or other financial institution, for capital, the local manager of the Independent telephone company had to do a complete selling job before consideration was given to a loan as the industry was not recognized in financial circles. As the operator of a small unit of this business, I have found every one of these problems to be true.

The national advertising campaign has been looked upon with favor and while all institutional advertising is an intangible thing, it seems that the program is gradually helping the smaller companies of our industry. I am aware that the large group operating companies really make this advertising program possible and my contribution, while proportionate in the industry, is like a "widow's mite" in comparison to the larger companies.

During the past two years we have told the story of our great industry to millions of Americans through the pages of *Time, U. S. News & World Report* and *Farm Journal*. New minds have been exposed to our messages and others reminded continually of our industry's progress. The program recently has been given new momentum through the development of a tie-in program which distributes *free* over 5,000 newspaper mats every two months. Thousands of bill inserts likewise are distributed without additional charge to members of USITA.

To our satisfaction, the agency now has shown how the nature of the new magazine series, plus a few changes in the production of the mats and inserts, would make it possible for the association to pursue this *free* method for little more than the cost of the old "for sale" method. So far, response to the new method has been excellent.

At a recent meeting of the committee several new proposals were given

consideration, which, when developed, will further increase the value and effectiveness of our national advertising program.

Tie-in advertising is a method of proved effectiveness used regularly by scores of successful advertisers. It adds thousands of readers to the national circulation of vital industry messages. It concentrates these messages in *your* communities—over *your* company's name. To the large number of people in your area who see *both* the national and local advertisements, tie-in advertising means *double* impact —provides *direct* association of your company with advertisements in leading national magazines. And, all the material you need for gaining this valuable recognition for your company and your industry is entirely free. Added to this is the very important local advertising program now carried on by over 1,000 small telephone companies through their subscriptions to Telephone Advertising Institute services.

Through this combined program of information a new concept of our industry is taking place in the minds of the American public. We are becoming an industry with prestige. Employes begin to feel they are a part of one of the really important industries of America, and new employes are more easily attracted as needed. In financial circles we are certainly becoming recognized as an important, sound link in our economy and many more purse strings have opened to our industry.

This National Advertising Program has hardly been in existence long enough to measure its true effectiveness. It is highly meritorious and should be rewarding to our industry. Every small Independent telephone property has an added value that did not exist previous to the advent of the program.

The Independent telephone industry is having a tremendous growth, and with growth come new problems: The need for new capital and new employes, and the need for public confidence in Independent telephony.

Our National Advertising Program, with growth come new problems: The oil that makes the wheels of Independent telephony operate more smoothly.

Advertising Program Has Advantages For Small Independents

By H. M. STEWART
Standard Telephone Co.
Cornelia, Ga.

AS ONE of the earlier proponents of a nationwide advertising program by, and in behalf of, the Independent segment of the telephone industry, perhaps I am not in position to review the question objectively. Now that I have seen it in action, I am convinced of its effectiveness, even in our small southern communities.

Honesty compels me to admit that we have found no new crucible in which advertising, or its results, may be reduced to an exact element that can be accurately weighed and measured. I do not, therefore, come bearing any graphic charts designed to show that the National Advertising Program has made a world-shaking impact upon the performance of a "typically small southern telephone company." On the contrary, I shall try to demonstrate our story with brief reference to a few simple facts we all meet and recognize every day.

First, let's take a look at the present-day concept of advertising. Can we not correctly define it as: The conditioning of the mass, or public mind? It is a means of winning the favor of people toward our firm and our product. In short, it is the age-old pride of the individual lifted to the corporate level. As individuals, we all want to be popular, so the men spend upwards of a total of three days out of each year shaving, women spend longer painting their lips, faces, and finger nails, and young people adopt outlandish fads.

We try to make people think well of us by being seen in the right places, and by keeping our front lawn neatly trimmed and the garbage can out of public view. At the corporate level this inherent sense of pride is translated into attractive packages for our product: Highly trained sales personnel, a progressive public relations policy, and an aggressive *advertising* program. Through these instruments, and more especially the last named, we try to 'win friends and influence people.'"

I repeat, we have no catalyst by which the essence of any advertising program can be fully extracted for critical appraisal. There is, however, a geometrical axiom which says: "Things equal to the same thing are equal to each other." It is an accepted fact that the American enterprise system has produced the highest standard of living for the greatest number of people known to recorded history. It is further known that America's annual budget for advertising outranks that of any other nation, and that it is becoming progressively larger. Certainly, then, this vigorous and aggressive advertising policy *must* be one of the powerful forces that has lifted the living standard of our people to such an unprecedented level.

Next, let us note and remember the fact that very little advertising pitched at the national level is beamed to restricted groups or specific communities. The toothpaste maker is as much interested in getting his dentrifice into the bathrooms of Cleveland, Ga., as those of Cleveland, O. Hence, the resident of Dallas, Ga., hears the same "commercials" as his cousin in Dallas, Tex. The same multi-color, two page spreads are found in the magazines in the homes of Philadelphia, Miss., and Philadelphia, Pa.

The effect of such a universal appeal upon public opinion is demonstrated on the shelves and in the show rooms of the retailers and dispensaries in the respective communities. To be sure, the resident of the small southern town may be somewhat independent in his thinking. This does not mean his mind is closed to logic, or a fair presentation of a matter. Moreover, this same quality assures a stable and permanent psychological climate, once it is established.

I am persuaded that the advertising program being carried on by the United States Independent Telephone Association is also reaching the people of our towns. I find it is helping to bring about a more enlightened and cooperative atmosphere in which to operate. I have used the word "helping" advisedly since we do not depend on the nationwide program alone. It would be like eating off a one-legged table. The national program is implemented by a carefully planned and timely schedule pitched at the local level. (We in our company are spending upwards of 50 cents per station per year in our overall paid publicity program. Last year it was 55 cents.)

Most of the tangible results recited by Mr. Brorein and Mr. Pearce are evident in our area. To these I will add this further statement: Over the past months and years, we have noticed a gradual but marked change in the climate and attitude of our customers. We have gained considerable prestige and enjoy a higher degree of public confidence. In short, the public mind seems better conditioned. We know the national advertising program, coupled with our own publicity policy, has had much to do with bringing this to pass.

Finally, only 30 of Georgia's 203 Independent telephone exchanges, with only 4 per cent of the Independent stations in the state, are served over magneto switchboards. Twenty-three of these exchanges are in some stage of conversion to automatic. When these are completed in the coming months, magneto exchanges and telephones in our state will have been reduced to the vanishing point. When *all* automatic conversions now under way in the Independent exchanges of Georgia have been completed within the next 18 months, 94 per cent of the exchanges and 96 per cent of the stations in the state will be dial operated.

All of this calls for big sums of new capital, a large share of which has come from private sources not available to us a few years ago. I, for one, am convinced that this swing in the thinking of investment people was influenced by what they have seen and heard, through paid publicity, about our business.

Pacific Coast Survey Shows Support For National Advertising Program

By ALLAN R. STACEY
Sunland-Tujunga Telephone Co.
Sunland, Cal.

I HAVE been asked to comment upon the importance of advertising as viewed by companies small and large on the Pacific Coast. It appeared to me that in order to honestly reflect the views of the Pacific Coast companies I should ask them what their opinions are.

In these days we have the Gallup Poll for determining who is the most popular political candidate, the Hooper Poll for determining what television programs are most listened to, and other polls for other purposes. Let me give you the results of the Stacey Poll of the Pacific Coast telephone industry.

Opinions were solicited from the following:

	No. Polled
Independent Companies	
800,000 Stations	1
100,000 Stations	1
12,000 Stations	1
9,000 Stations	1
7,000 Stations	1
4,000 Stations	1
3,000 Stations	2
1,600 Stations	2
Telephone association secretaries	3
Financial lending institutions	2
Bell System operating company	1

Each management executive was asked the following questions:

(1) In your recent financing efforts have you felt any benefits from the USITA Nationwide Advertising Program?

(2) Have your public relations at the local exchange level been effected by the advertising program?

(3) Have your stockholders commented upon the advertising program?

(4) Has the advertising program had any effect upon your relationship with employes?

(5) Does your company use the tie-in advertising mats for local advertising purposes?

(6) Do you personally see the advertisements in *Time* or *U. S. News & World Report?*

(7) What improvements do you suggest for this advertising program?

Naturally, the questions to those other than Independent operating company executives were phrased appropriately.

The results of the Stacey Poll may be summarized in one sentence—*Each and every one of the executives of the telephone companies, ranging in size from 1,600 stations to 800,000 stations, and each of the other interested persons, expressed the opinion that the Nationwide Advertising Program was beneficial for the Independent industry.*

Selected Quotations from Answers Given by Operating Executives follow:

Financing

"My drop wire manufacturer tells me of going to a New York bank for a short-term loan, describing himself as a manufacturer who supplied drop wire for much of the Independent telephone industry, and being asked by the bank, 'What in the dickens is the Independent telephone industry?' This year the New York bank knows more about the Independent industry."

"There may not be a correlation, but recently my financing problems have been eased considerably."

"Prior to the time of the National Advertising Program our long-term lender had considerable sales resistance to our requests for additional money. Suddenly he had a change of heart. This may have been coincidence and it may not have been."

"As a result of reading these ads the general public has contacted our company directly asking for stock when it is issued again.'

Reaction at Exchange Level

"My subscribers now realize that there is such a thing as an Independent telephone industry."

"Our public now knows that there is someone else in the business besides the Bell System. Before this campaign our people had the opinion that the only telephone company in California was the Pacific Telephone & Telegraph Co. (Bell)."

"We have had people come into our office and say that they didn't realize that there were other companies like us in the country."

"Our public has said to us in the past that it was only a matter of time until we would be bought up by the Bell System. Now they no longer feel that way."

Stockholder Relationship

"Several of our stockholders have seen the ads and commented that they should have picked up more Independent company stock in earlier years."

"Our stockholders have said that now they have more confidence in our company as a result of hearing about the rest of the Independent industry."

Effect Upon Employes

"Our employes are beginning to realize that we as a company are not merely step-children of the Bell System."

"Our employes say they now have a sense of pride in feeling a part of the Independent industry."

Use of Tie-in Ads

Five telephone companies said they use the tie-in mats and five companies said they do not.

Those Seeing Ads

Every telephone executive and association secretary said "Yes." One financial executive said "Yes."

Suggested Improvements

"Nationwide Bell System advertising has promoted extension sales and credit cards. Is it possible for our nationwide independent advertising to do the same?"

"Is it possible to make the ads contain less fine print?"

"Is it possible to point up the cooperative operating relationship between the Bell System and the Independent industry?"

Comments I Liked Best

From the owner of a 1,600-station exchange: "How about putting these ads in a Street and Smith publication so that they may better reach my community?"

(Please turn to page 106)

XUM

Report of USITA Plant Committee

By H. P. SIEBKEN
Chairman

SINCE last October, C. E. Howden of Rochester, N. Y., has replaced G. W. Miller of the same company on the USITA Plant Committee. Also, George B. Quatman of Lima, O., has been added as a new member. We wish to express our thanks and appreciation to Bill Miller for his many faithful years of service on the Plant Committee, which included several years as chairman.

A meeting of the USITA Plant Committee was held in Chicago in May of this year. The following directors of sub-committees were designated:

Cable and Safety. W. M. Driggs of New York, N. Y.

Central Office and Station Equipment. George B. Quatman of Lima, O.

Pole Lines, Conduit, and Wire Plant. George P. Barney of Lincoln, Neb.

Transmission Testing, Inductive Interference, and New Techniques and Equipment. B. C. Burden of Lincoln, Neb.

Toll Dialing, Radio, and Carriers. F. S. Barnes Jr. of Rock Hill, S. C.

Members for the five sub-committees were selected at this meeting and were later notified and asked to give their time and assistance to the sub-committee directors and our Independent telephone industry.

At the spring meeting of the committee, the forthcoming October conference at Chicago was discussed, subjects for presentation were agreed upon, and preparations were begun. Similar to last year, each sub-committee was asked to prepare a report for this fall conference covering its phase of telephone plant. Due to the short time available for the speakers at the conference, all reports will not be presented in person by the directors of the various sub-committees. However, copies of their papers will be made available. . . .

Some of the speakers will cover only the main points of their reports. It is felt that these reports are very much worthwhile and should be kept for future reference. A cover similar to last year's will be available for binding and preserving the various reports and papers given at the conference. . . .

At this fall conference, several subjects which the committee felt were of major interest to all plant people, will be presented. Two items, "Line Concentrators" and "Rural Subscriber Carriers," we felt were of considerable interest to a great number of companies that have deloading and held order problems. Another item to be presented by a qualified speaker which is of continual interest and must be kept ever before our employes is accident prevention. Also, we propose to have a report by C. H. McLean, chairman of the Radio Service Committee. B. C. Burden of Lincoln, Neb. will present a plant view into the future of telephone communications.

During the year, committee members have been active on quite a number of matters brought before them. Last year George Barney began work on standardization of color codes and tracer designations on drop, bridle, inside, distributing, frame, and ground wires. This project is being diligently pursued in view of the benefits to be derived from such standardization. It is expected that the committee will be in a position to submit for consideration by the (USITA) board of directors at its next meeting a recommendation covering the adoption of proposed standards in this regard. The booklet covering "Outline of Dial Conversion Procedure for Small Companies," which was prepared by a special committee under G. W. Miller of Rochester, N. Y., was distributed to member companies by our USITA office in February of this year. It has excellent suggestions in both time and money savings.

Some of our members were called upon for help on other specific committees. Three members served on the "Special Committee for Reporting and Accounting for Station Equipment." Cooperating with members of the USITA Accounting Committee and representatives of the AT&T company, the views of the Independent Industry were presented before the Federal Communications Commission. We feel the results were very gratifying. . . .

One of our members, Bill Driggs of New York, represented our Plant Committee on matters brought before our USITA National Defense Committee. Likewise, Mr. Driggs represented us at an REA symposium on plastic wire and cable. Furthermore, our members have been asked to review certain proposed revisions of the National Electrical Code. At various times, letters have been directed to the committee dealing with plant matters and have generally been handled by the director of the appropriate sub-committee or by the committee as a whole.

The Plant Committee at all times is ready, to the best of its ability, to answer any questions or assist on problems which may be called to its attention. Any questions or requests should be sent either to the chairman or the directors of the sub-committees. On major requests, we feel that such matters should be discussed by the committee as a whole, and if agreed upon, proper recommendations or suggestions will be made.

We wish to express our thanks and appreciation to the members of the sub-committees for their help and cooperation. Thanks is due them for giving their time and the benefit of their knowledge to our industry. Also, we wish to express our appreciation to the companies that have made it possible for these men to serve on the various committees.

Use of Line Concentrators

By F. D. REESE
Chief Engineer
General Telephone Co. of Pennsylvania
Erie, Pa.

(Plant Conference Address)

SINCE outside plant represents, perhaps, the largest proportion of any operating telephone company's capital investment, the industry is always interested in any techniques or new devices which will defer or reduce the dollars required to supply lines to our subscribers. Towards this end, in recent years, it has been possible to use multiple distribution wire, subscriber line carrier and unattended community dial offices. The purpose of this paper is to discuss an old device which has only recently taken forms practical enough to allow it to emerge on the scene with promise of outside plant efficiencies in certain applications. This device is known as the line concentrator.

The concentrator usually consists of two units, one mounted in the central office (called the central office-end unit) and the other in the vicinity of the subscribers to be served (called the subscriber-end unit). It is a form of switching equipment which may be electronic or electro-mechanical. Its operation depends on the probability that for a given number of telephones, only a certain fraction of them will be used at one time; and, therefore, only this fraction of the number of circuits need be furnished, if there is a means of transferring these circuits to the telephones in use. Or, said another way, the concentrator permits a small number of line pairs to serve a large number of subscriber lines by pooling the idle time of all of the lines so concentrated.

Some of the recent concentrator activity in the telephone industry has involved the Michigan Bell Telephone Co. Realizing the advantages of such a device, they locally engineered from conventional crossbar equipment components, a successful concentrator which will operate with step-by-step and other types of central office equipment. Some of these units have been operating for a year or two.

On a system-wide basis the Bell System is currently developing an electronic concentrator designed to operate with No. 5 crossbar central office equipment only. In effect this system locates in the field the originating and terminating line equipment, operated under control of the conventional line link frame equipment in the central office.

Pending the availability of a successful domestically-made concentrator device to the Independent industry next year, the General Telephone Co. of Pennsylvania has used Swiss-made concentrator units.[1] Produced by Gfeller, Inc., (and illustrated herewith) this concentrator makes use of an unconventional crossbar switch. This crossbar switch has the unique feature of permitting a connection, once made, to be held indefinitely without the consumption of power. It is, therefore, possible to avoid external power requirements at the subscriber-end unit. The particular model used will accommodate some 49 subscriber lines, which may operate over a total of nine talking paths to the central office-end unit and control over two pairs betwen this unit and the subscriber-end unit. This concentrator will operate with any central office equipment which has a ground operated sleeve wire. The usual subscriber line equipment is required with the concentrator just as it would be if conventional line facilities were used to connect the subscriber lines with the central office equipment.

Although it is beyond the scope of this paper to discuss the circuitry of any of these concentrators in detail, perhaps it would increase our appreciation of the possibilities for the use of concentrating equipment if we briefly described the handling of a call through the last mentioned type of concentrating device. If, for example, a subscriber associated with the subscriber line connected to termination No. 10 of the subscriber-end unit originates a call by lifting his receiver, this unit, by means of its crossbar switch, will connect termination No. 10 to an idle trunk to the central office-end unit. Over the two control pairs it will relay information to the central office-end unit which will direct the crossbar switch there to connect this same trunk to termination No. 10. Termination No. 10 is already cross-connected to a subscriber line circuit in the central office switchboard. This line circuit is then activated in the usual manner to respond to the incoming call from the subscriber.

On a call to the subscriber, when the subscriber's terminal in the switchboard is seized by a connector or cord circuit, the sleeve wire is grounded and the concentrator termination associated with it is actuated. The crossbar switch in the central office-end unit then associates the termination with a trunk to the subscriber-end unit, and the call is completed by the crossbar switch there in the same manner as in the case of a call from a subscriber as described before.

Within our experience the price of such a concentrating device installed in the central office and installed in a suitable weather-proof box on a pole in the vicinity of the subscribers to be served, is in the order of $6,000. Upon removal, its salvage value is high.

A concentrating system is not the answer to all outside plant problems by any means. Its application must involve subscribers having their primary calling interest to the community in which the central office equipment is located rather than among themselves; since

[1] "Line Concentrators for Telephone Plant" by H. G. Evers and F. D. Reese, TELEPHONY, Mar. 3, 1956.

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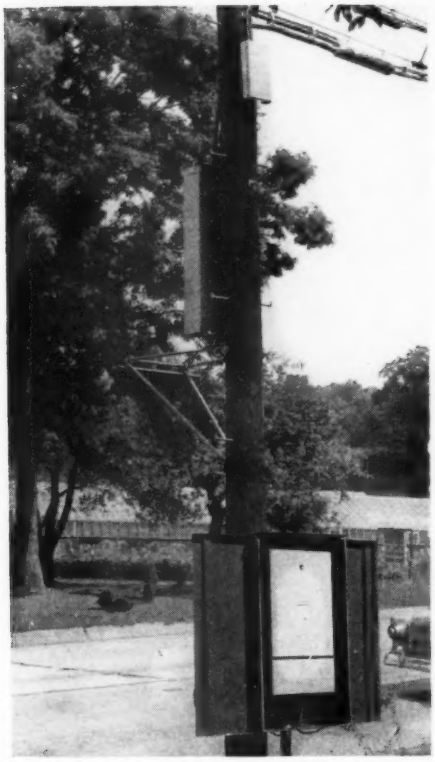


Outdoor installation of subscriber-end unit.

two trunks are involved in a call between two subscriber lines on the same concentrator system. Also, the line concentrated should be of high grade, preferably one, two or four-party, so that the use of the common trunk by each line is not too great. It should be recalled that the concentrator merely shares the idle time of the subscriber lines associated with the system, and if the lines are extremely busy the degree of concentration realized will not be great.

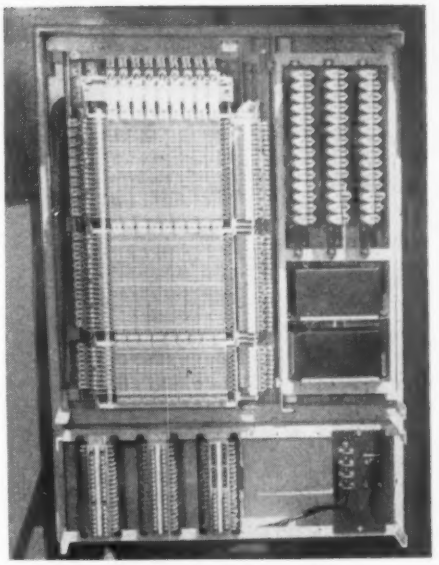
The line concentrator fits somewhere in between low cost physical line facilities, such as multiple distribution wire for comparatively short distances, and subscriber carrier for a small number of high calling rate lines on the one hand, and a community dial office to serve a larger number lines having considerable internal interest on the other hand. You will undoubtedly recognize that between these two limits there is a considerable field of use for concentrating equipment.

This use may be temporary in nature to defer large expenditures for conventional line facilities, or may prove to be permanent in some cases where growth demands are small. It is interesting to note in passing, however, that the telephone system of the future may well be expected to make wide use of this concentration principle. By locating part of the central office equipment in the field, pairs for every subscriber's line will not be required clear back to the central office, and thus great savings may be expected in the feeder cable plant of an exchange.

In order that we may better understand the field of use for line concentrating equipment, let us consider some actual typical applications:

First, is the case of a resort locality along a mountain river some 15 miles from an existing exchange. For some years this locality was used by summer cottagers and more recently by persons building permanent dwellings for year 'round occupancy. They had very little internal interest since their calling mainly involved telephones in the principal community served by the exchange. The area was served by an open wire lead having seven pairs of wires. An economic study of cable versus the establishment of a community dial office proved in the latter by a considerable margin. Since line concentrators were not available at this time, a central office was established with some 90 subscribers on 20 lines. Obviously, this was an ideal case for concentrator application; and could one have been made, a saving in initial cost of some $30,000 could have been realized. A concentrator installation here would have been expected to be "permanent," since the rate of growth in this community has been slow and is expected to be slow for some period in the future.

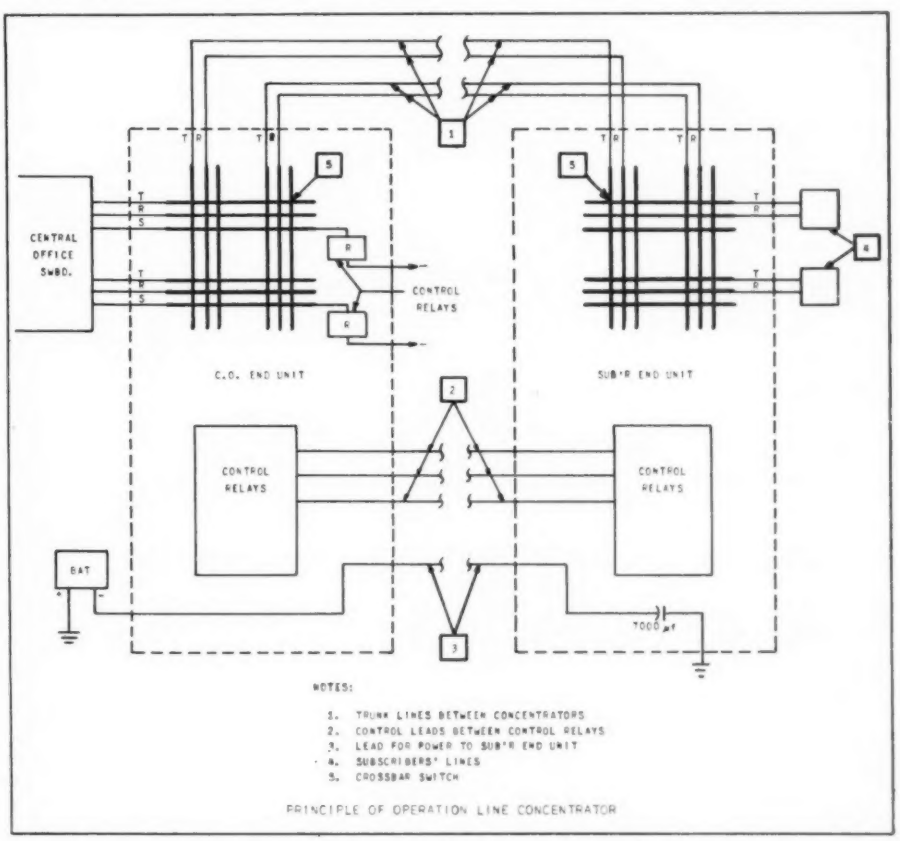
Next, let us consider the case of business and rural development along a highway at the outskirts of a small



Subscriber-end unit equipment.

city. Continued growth in the area is expected. While the distribution cable plant was fairly adequate, the underground and aerial feeder cable plant had been completely exhausted. Some distribution cable construction was immediately required in any event. But cost studies showed that some $19,000 of feeder cable might be deferred for two years by the use of a concentrator. Translated into terms of present worth of annual charges, the line concentrator installation had an advantage, even though small.

(Please turn to page 121)



Principle of operation-line concentrator

Importance of Training and Attitude in Accident Prevention

By L. C. MEYER
Employers Mutual Liability Insurance Co.
Wausau, Wis.

(A Plant Conference Address)

HUMANS as you and I sometimes look but do not see—we sometimes listen but do not hear—we sometimes read but do not comprehend. Largely because of these human frailties we and our fellow workers sometimes become accident victims.

I am not going to bore you with a lot of accident statistics except to say that the monetary and economic loss from accidents run into the billions of dollars annually. And believe me, these expenditures bring profit to no one.

That accidents cost money is nothing new to any of you. Many other accident costs cannot be expressed in dollars and cents. Some years ago a certain car manufacturer used as an advertising slogan—"Ask The Man Who Drives One." To get the full meaning of an accident—"Ask the man who has had one." Some accidents leave their stamp on generations yet unborn. We can do nothing about the accidents of yesterday—except to care for the victims. The potential accidents of tomorrow, though, are a different story—because we can do something about them.

In theory, the prevention of accidents is simple—just remove the things that cause accidents—they all do have definite causes—and then we won't need to worry about the accidents. Unfortunately, in actual practice it isn't quite that simple.

The main reason for the complication is that we are dealing with men and not machines. Man, the human element, is the key to the solution of this problem. You men here this morning, to a degree at least, control the turning of that key in your respective organizations.

First, let me establish that accidents are preventable. Each of you think back to some accident you were involved in, or one where you know *all* the *facts*. Isn't it easy to look back and point out the definite and contributing causes, and to identify the thing or things that could or should have been done which would have prevented the accident? You may say that hindsight is always easier than foresight, and I agree, but I wonder if you are giving enough foresight to possible causes of potential accidents in your own organization.

When we stop to analyze the accidents of an organization, we suddenly realize that the big majority occurred because of just one thing—a mistake—sometimes on the part of the accident victim, ofttimes on the part of supervision.

Too often we place too much importance, or confine our attention, to the accident itself. It is easy to do this because that is where the spectacular exists—the smoke, the noise, the flow of blood and the screams of the injured. Take care of the injured, of course, clean up the mess—*but don't stop there.* Do not rest until you have identified every single cause and taken the necessary corrective action that will prevent recurrence of the accident. And while we're on the subject, don't ever accept "carelessness" as an accident cause. Anyone who tries to use that term as an accident cause is giving an alibi, possibly because the real cause would embarrass the individual making the report. A true accident cause always indicates the necessary corrective action. Where can you go with the term "careless"?

I'm sure that all of you recognize the fact that safety is a function of *management.* All successful action must stem from that source. Management is the keystone in an organization regardless of its size.

Let me illustrate *management's* position in this way. Somewhere in this progressive explanation will fit every company representative here.

The most elementary form of business is a one-man operation—a man in business for himself. In that organization, that one man is a lot of men all rolled up into one—boss, purchasing agent, salesman, maintenance man, the worker. As the business prospers and grows, he hires someone to help. The manager of what was a one-man operation has now added the duties of a personnel man and supervisor to his growing responsibilities. Of course, recognizing the importance of job placement, he picks the man to fit the job.

As the business continues to grow he hires others and adds them to his organization, finally reaching a point where he needs a supervisor or foreman. His basic duty is to see that *management's* aims and objectives are followed.

As further growth continues, additional individuals are added to it, individuals whose titles may be—superintendent, office manager, personnel director, yes—and even a safety director.

In all cases each individual's basic job is to promote the program of *management.* True, as such help is added, *management* delegates a portion of his responsibility but still holds the reins of control.

I have heard persons in supervisory capacity say—"If I could only get cooperation from the front office." These individuals don't get, they give cooperation to top management.

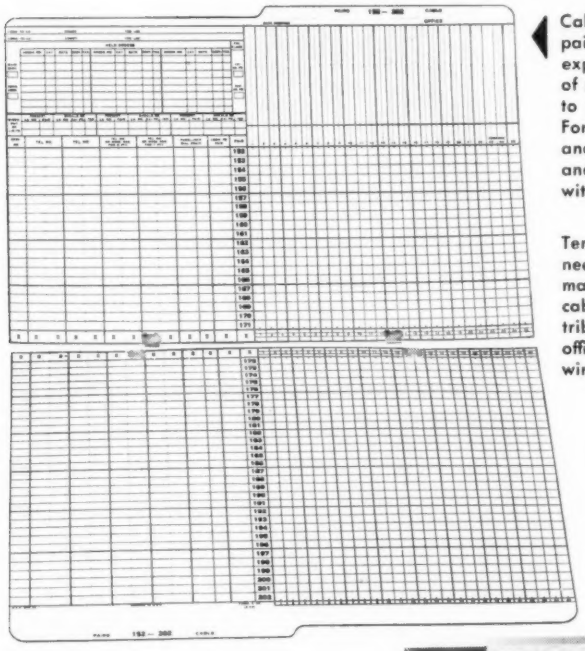
During the early years of World War II I was attending a class in safety engineering. The instructor asked us to list the things of major interest to top management. After discussion and eliminating duplicating or overlapping items, we came up with

ACME VISIBLE

CABLE AND TERMINAL ASSIGNMENTS

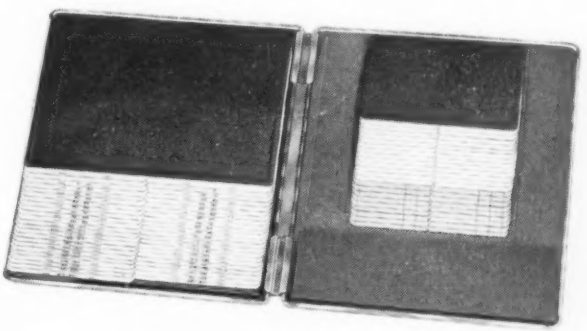
Designed by experienced telephone personnel to accommodate all of the various conditions encountered in the preparation of terminal assignment, exchange subscriber cable, and related basic plant records, in accordance with approved system practices.

Simplifies and speeds the work of assignment. Adaptable for large, intermediate and small centers with the flexibility to meet the requirements for peak and normal work loads, varying number of cables, and other local conditions.



Cable assignment forms. With preprinted pair numbers, filed in numerical sequence, exposing a 51 pair complement. Cards are of special Acme Endurex rag content stock to permit repeated erasures and changes. Forms available for 50 terminal capacity and 8 party stations; 44 terminal capacity and 10 party stations; and for rural areas with more party lines.

Terminal assignment forms. Eliminate the necessity of referring to supplementary maps to determine the correct distribution cable terminal. Forms available for distribution by (1) street, block or alley; (2) office building or apartment; (3) exchange wire.



Light weight metal-edged visible books for filing of cable cards on one side and terminal cards on the other, or for the same card on both sides of the book. Attractive gray Keratol binding.

Visible cabinets are available in a number of sizes. Each tray has a maximum of 102 forms or the equivalent of 5,100 cable pairs. Cabinets can be either stationary on stands or desks, or mounted on turntables.

Rotary equipment available in various sizes with and without push button motor. Books slide in and out without any lifting. They provide accessability to records at many points around circumference, and permit clerk to do a complete cable throw.

ACME VISIBLE RECORDS, INC.

CROZET, VIRGINIA

ACME VISIBLE RECORDS, INC., Telephone System Division, Crozet, Virginia T10-27-56

Please send us illustrated booklet

☐ #994 on Acme Multi-Card Bulletin Holders ☐ #982 on Acme Flexoline for Telephone Companies

☐ Have representative call. Date ..... Time .....

☐ We are interested in Acme Visible equipment for ..... records.
KIND OF RECORD

Company ..... Attention .....

Address .....

City ..... Zone ..... State .....

DEPARTMENT OF TECHNOLOGY
BUFFALO PUBLIC LIBRARY

three—quality, quantity and safety. We further found that no one of the three items could be overemphasized nor could one be neglected. They were equal in importance.

Unfortunately, we sometimes find organizations where current production problems assume too high a relative level of importance with the result that safety is pushed aside. At least that is the impression. The employes' attitude then becomes—"Why should we pay so much attention to safety when it is clearly of no concern to management?

I am not implying that *management* loses sight of the importance of safety in his organization. It is the attitude that is shown by management that will be reflected all the way down through his organization.

Perhaps attitude toward safety is nowhere more important than in a supervisor or foreman, keeping in mind that to employes, he is a representative of *management.*

Left to right: Winnie Burnett, C. R. Lee, E. H. Utzman, all of Brownwood, Tex., and John H. McHenry of Jefferson City, Mo.

Woodrow Wilson once said that, "In these changing times a man has to run to keep even, and to run twice as fast if he expects to get ahead." The attitude of a good supervisor must be such that he realizes there are things to learn, that improvements can be made. *Management* must give their supervisors the opportunity to keep up with changes and new developments in the industry.

Left to right: I. J. Devoe of Lincoln, Neb.; W. J. Scheidler of Greensburg, Ind., and Claude Warren of Indianapolis, Ind.

I'd like to illustrate this by the story of a jeweler who noticed that a man stopped at the jewelry store window each day and set his watch according to the clock in the window. One day the jeweler went out and asked this man why he did this day after day. The fellow explained that he had a very responsible task at his plant of blowing the whistle at 12 o'clock every noon and he wanted to make sure that his watch was right. At this the jeweler broke into laughter. The man who had been setting his watch daily couldn't see anything funny about it. Finally the jeweler explained that it was very funny to him because every day at 12 o'clock he set his store window clock according to the whistle.

Here were two fellows who thought they knew exactly what they were doing and that they had this part of their daily work down to perfection. Obviously, if either of them was wrong, then they were both wrong. So let us keep in mind that we don't always have the final answer and we should keep

(Please turn to page 123)

Certainly one duty of a supervisor is to provide safe working conditions. Obviously, he needs to have adequate knowledge of what makes safe conditions, a source of which is his own background of experience. Other sources are state safety codes and standards, insurance carrier safety engineers, safety councils and trade associations. Suppliers of equipment and material can provide help in the safest method of using their products.

Occasionally a supervisor is found who already has all the answers, or so his attitude indicates. You may recognize the type—"Been doing things this way for 20 years."

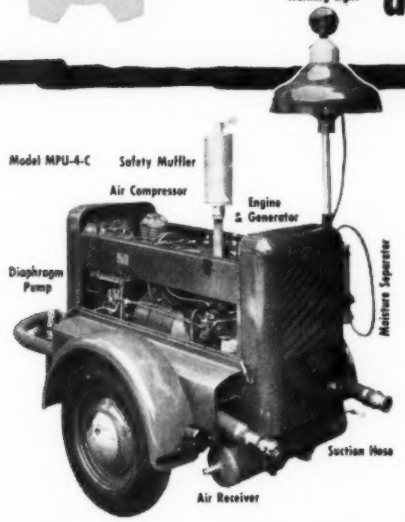
A supervisor with this attitude must be made to realize that things change. Old equipment wears out—new machines and processes are put into use. Sometimes new developments may introduce a new hazard.

Left to right: D. A. Anklam of Rhinelander, Wis.; Mrs. Anklam, B. B. Harder of Sumter, S. C.; J. W. May of Erie, Pa.; Mrs. C. I. Heare of Decatur, Ind., and Mr. Heare.

XUM

S&G designs for you

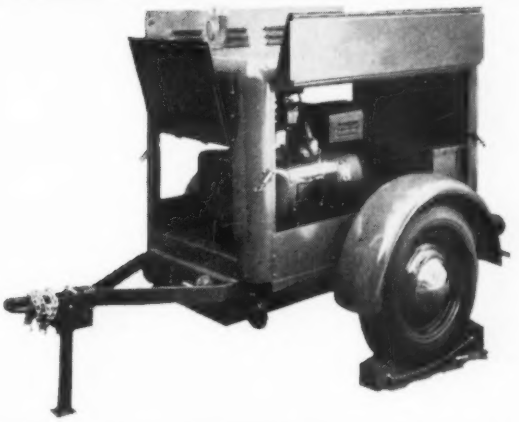
and your specific needs



MOBILE POWER UNIT (Model MPU-4-C)

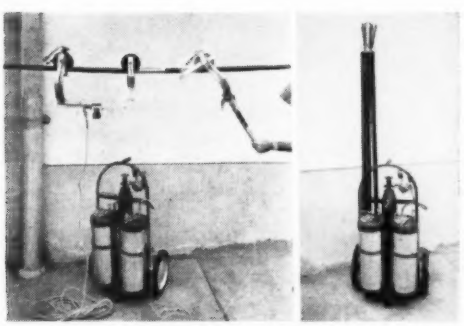
• Generator (slow speed for quietness) 2500 Watt, 110-Volt DC • Pump—2800 GPH Diaphragm to remove seepage and drain back.

• Air Compressor—to put cables under pressure for cutovers or repairs. *Furnished with or without pump and compressor.* This unit is extremely versatile and very dependable. It has a 300-Watt floodlight, push button control, buzzer signal, supplies dry air, operates electric blower, soldering pot and iron, electric and air tools—is light, easy to handle.



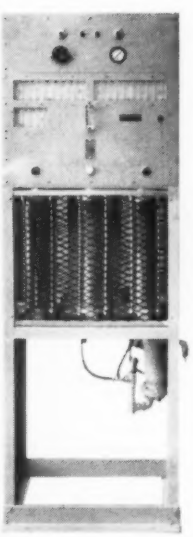
MAINTENANCE GENERATOR (Model T-300)

Used for maintenance or standby service. Equipment includes tool box, fuel tank, safety chain & chocks, tail light & reflectors and sheet metal house with hinged sides, hinged front cover. Trailer is available with or without generator. Approximate size: 92″ long, 53″ wide, 51″ high. With the generator, approximate weight is 800 pounds.



LEAK DETECTOR APPLICATOR (Model LD-1 & LD-2)

Both models use highly successful chemical type leak detector. Applicator's dual nozzle sprays both sides of pressurized cable, giving 100% coverage. Bubble cluster forms around leak within minutes and can be clearly seen from the ground. Air pressure bottle in cart supplies regulated pressure in solution tank at all times, can be adjusted for different heights.



ACD AIR COMPRESSOR DEHYDRATOR

Exchange equipment designed for supplying chemically dry air for telephone cables, aerial and underground, this unit can supply as many as 60 cables. Main feature is individual flow indicator for each cable showing volume of dry air consumed per cable per hour.

- Both Automatic and Manual Units available
- All desiccant containers are visual
- Air Purifier to eliminate oil mist
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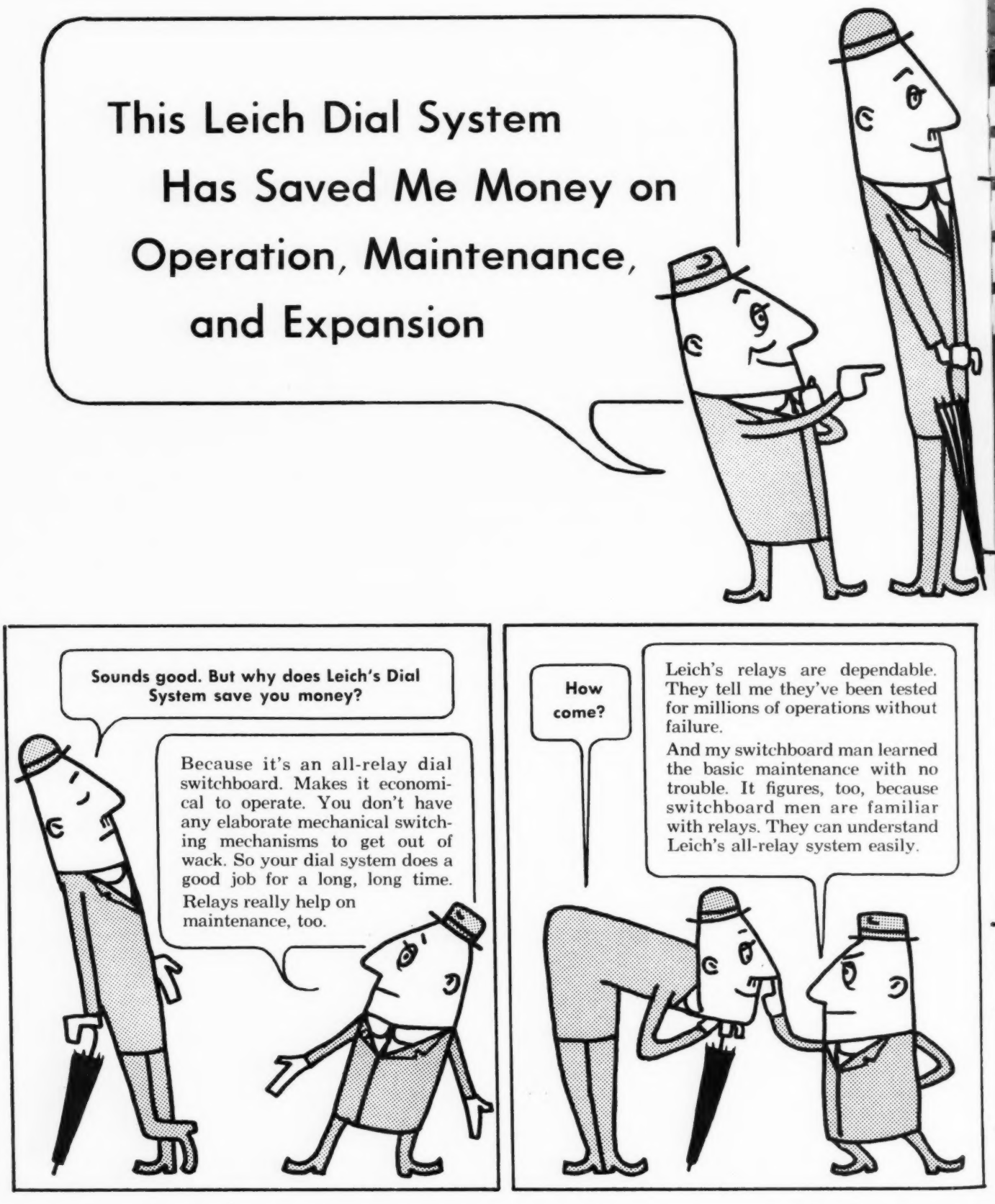
This Leich Dial System Has Saved Me Money on Operation, Maintenance, and Expansion
Sounds good. But why does Leich's Dial System save you money?
Because it's an all-relay dial switchboard. Makes it economical to operate. You don't have any elaborate mechanical switching mechanisms to get out of wack. So your dial system does a good job for a long, long time. Relays really help on maintenance, too.
How come?
Leich's relays are dependable. They tell me they've been tested for millions of operations without failure.
And my switchboard man learned the basic maintenance with no trouble. It figures, too, because switchboard men are familiar with relays. They can understand Leich's all-relay system easily.

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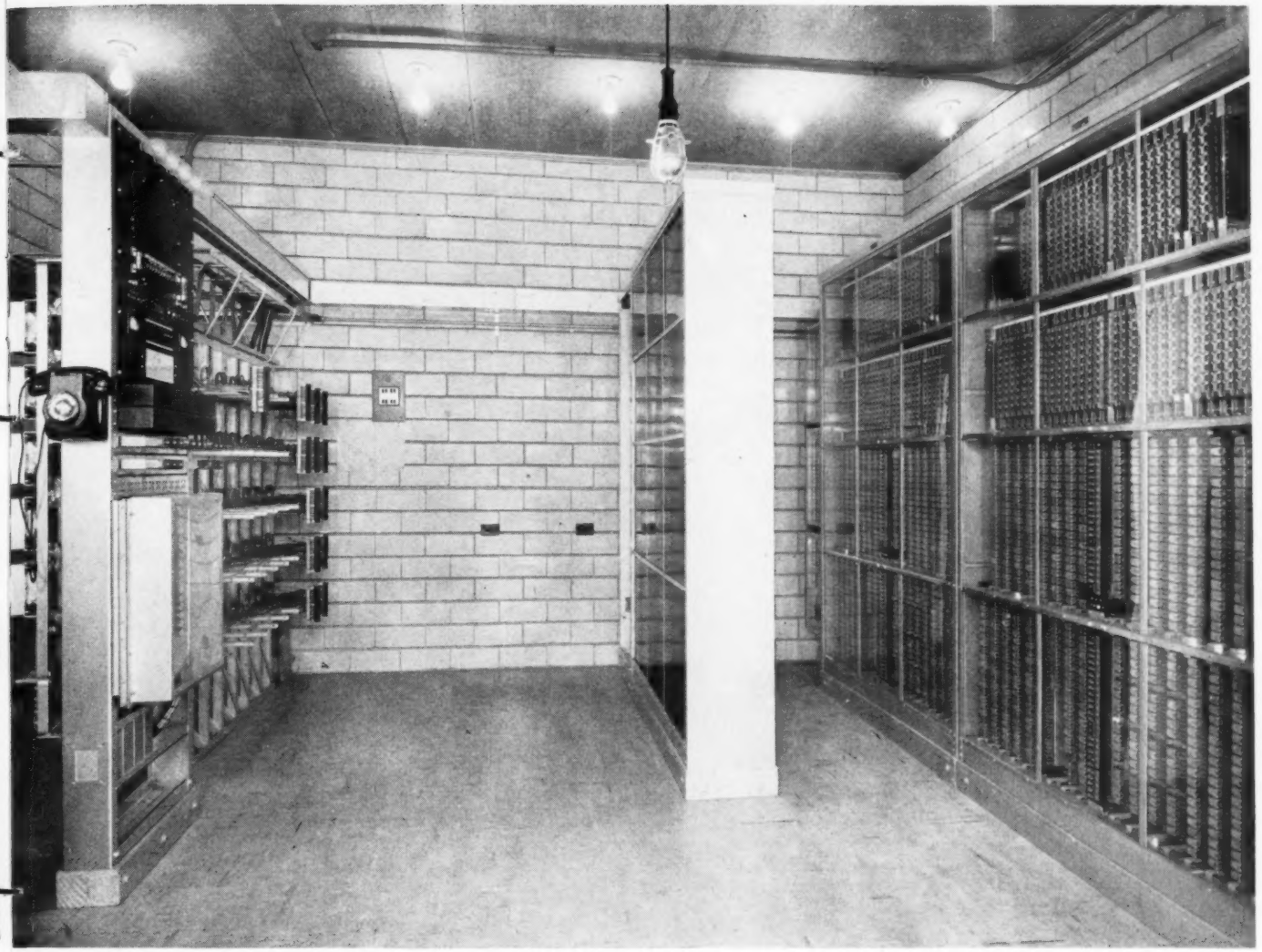
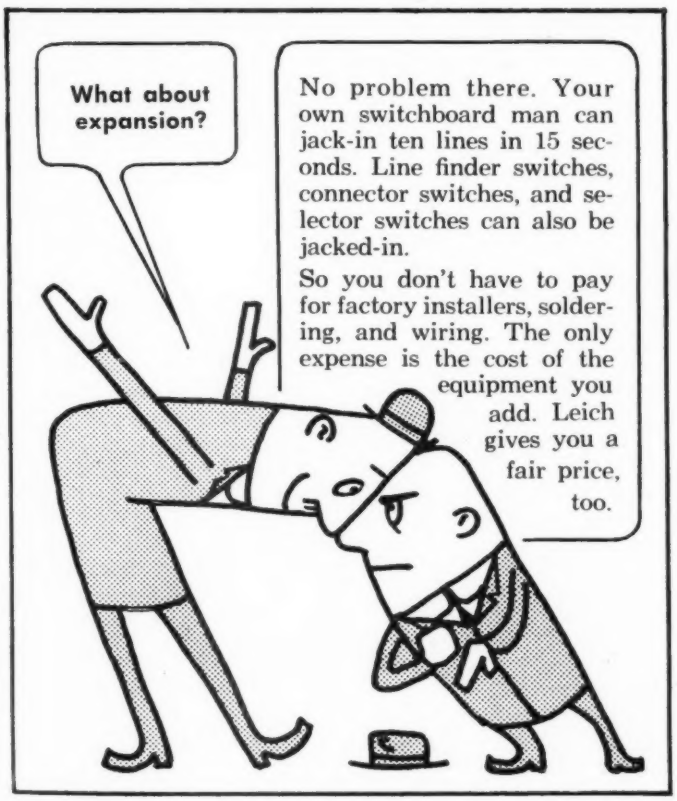
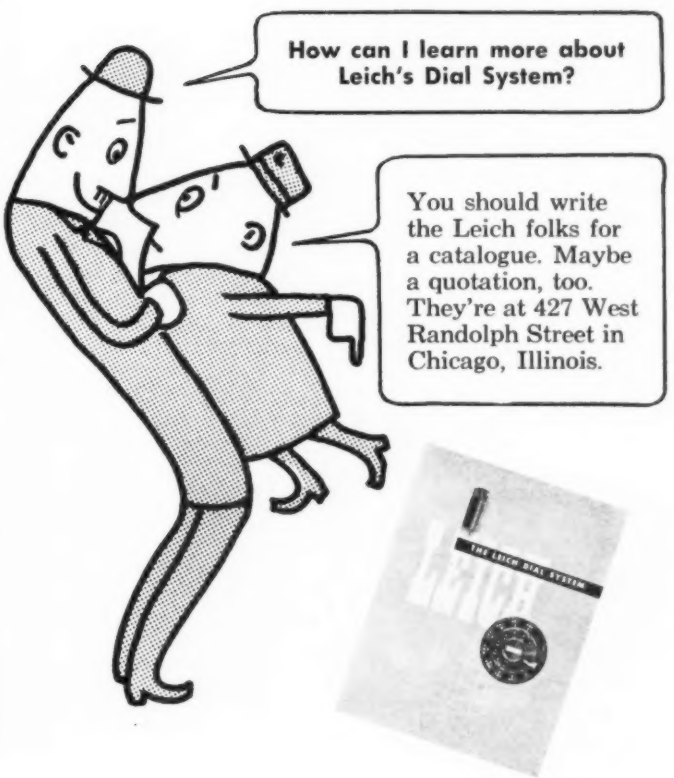



What about expansion?
No problem there. Your own switchboard man can jack-in ten lines in 15 seconds. Line finder switches, connector switches, and selector switches can also be jacked-in.
So you don't have to pay for factory installers, soldering, and wiring. The only expense is the cost of the equipment you add. Leich gives you a fair price, too.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What's New in Radio

By C. H. McLEAN

Chairman, USITA Radio Service Committee

(A Plant Conference Address)

"WHAT'S New in Radio" is a broad title for some of the radio or electronic developments of interest to the industry since our last annual convention. Incidentally, did you know that the word "electronics" was not even in existence 25 years ago. Originally, the main function performed by electronics was that of communication. Now, however, everybody is in the act, so to speak, and with the electronic age, an industry of more than 11 billion dollars has come into being.

In the field of our greatest interest—"Communications"—many new developments are underway, for example: Electronic switching; the experimental picture-phone; small two-way radio sets to be worn by individuals much in the manner of Dick Tracy's wrist-watch radio featured in the comic strips; closed circuit television and many others. Electronic developments outside of the communications industry also come to our attention and I have in mind the electronic cooker, a device that will cook your dinner in a matter of minutes or even seconds.

The telephone industry has no quarrel with such developments, only to the extent that their use of the radio spectrum may render inoperative that portion assigned for communication purposes, even if such allocations are on a shared basis. In fact, radio frequency bands available to common carriers below 6500 Mc are becoming so inadequate for common carrier use that considerable development work is taking place in the 11,000 Mc region, the next highest allocation for common carrier operation. Of interest in this connection is the fact that more than 20 per cent of the Bell System toll facilities are now derived by radio.

With all the activity in electronics, the FCC is pressed on all sides for frequency space. This has led to the consideration of new techniques that are of interest, such as single side band operation which permits upwards to four voice channels to operate on substantially the same radio carrier space now occupied by one channel with double side band operation. Some indication of things to come with single side band is covered in FCC Docket No. 11628. Channel splitting, better described as reduced channel spacing, has been adopted by the FCC in Docket No. 11253 for the 152-162 Mc band; thus, by operating at half the present spacing for future assignments, additional channels are provided. For new equipment, the effective date of meeting the new 30 Kc separation for the same area and 15 Kc for adjacent areas is two years hence. For present licensees, all equipment, including existing equipment, must comply with the new standards within seven years from date. The disposition of the new channels made available by channel splitting will be the subject of future FCC proceedings that will be followed closely by the Radio Committee on behalf of the association (USITA).

A. T. Renn (left) of Chicago and H. J. Huether Jr. of Lexington, Ky.

The FCC, in Docket No. 11532, also has under consideration the relocating of that part of television broadcasting now in the VHF band, up to the UHF band. Such a move is said to have advantages from the standpoint of television broadcasting, but of greater interest to the telephone industry is the possible release of VHF frequencies that are ideally suited for mobile service in the region below 300 Mc. If this proposal becomes a reality, it will take many years to complete the transition.

In the past, your Radio Committee has consistently urged Independent telephone companies to provide for tomorrow by taking full advantage of radio as a means of meeting public service demands while there still was frequency space available. It is a pleasure to note at this time that many Independents are active in radio and are making use of the too few channels available for assignment to common carriers.

When it was prophesied that there would be competition from others for the use of some of the bands in which common carriers had an interest, it was hardly anticipated that some of this competition would come from the family kitchen, so to speak, or from industrial operations, some of which rate the communications industry as a valued customer for their products. Such is the case of the 890-940 Mc

(Please turn to page 55)

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THE BIG NEWS IN
TELEPHONE WIRE
AND CABLE

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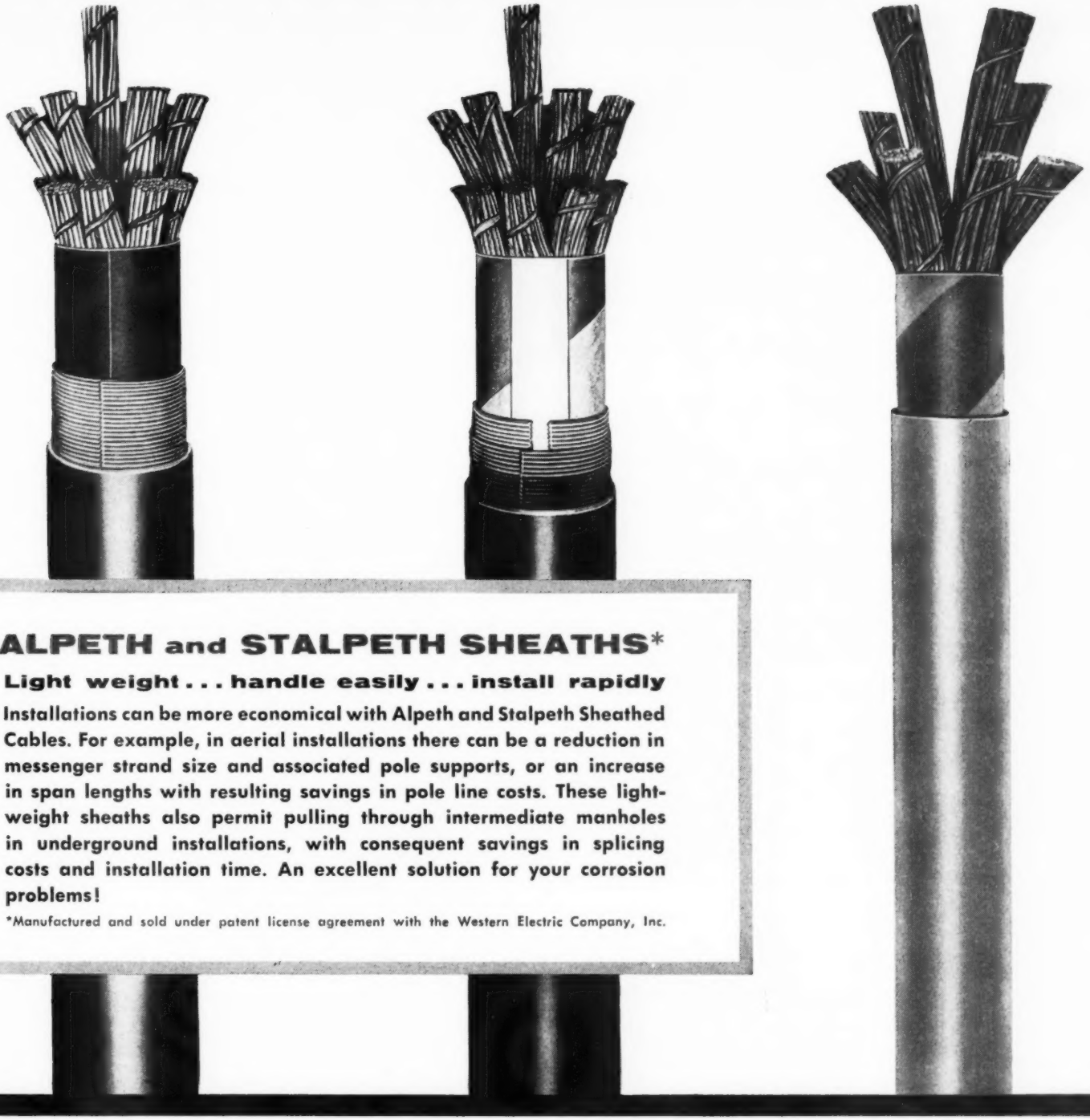
GENERAL CABLE IS THE ONLY SUPPLIER INSTALLING EQUIPMENT FOR 3 NEW TYPES OF SHEATHS

Alone among the world's suppliers of telephone wire and cable, General Cable is installing facilities to make *all* these types of new sheaths. Facilities are of a size, scope and adequacy to meet every need of the Independent Telephone Industry! Alpeth Sheathed cables will be available late in 1956. Stalpeth and Aluminum sheaths will be available early in 1957.

ALUMINUM

Light-weight, EC grade aluminum is extruded directly over the insulated cable core in the newest type of impervious telephone sheath, produced under carefully controlled temperature and pressure by an exclusive General Cable aluminum extrusion press designed and built specifically to do the job. This exclusive extrusion process eliminates length limitations imposed by other methods of aluminum sheathing.



ALPETH and STALPETH SHEATHS*

Light weight . . . handle easily . . . install rapidly

Installations can be more economical with Alpeth and Stalpeth Sheathed Cables. For example, in aerial installations there can be a reduction in messenger strand size and associated pole supports, or an increase in span lengths with resulting savings in pole line costs. These lightweight sheaths also permit pulling through intermediate manholes in underground installations, with consequent savings in splicing costs and installation time. An excellent solution for your corrosion problems!

*Manufactured and sold under patent license agreement with the Western Electric Company, Inc.

ALPETH

An Alpeth sheath, ideally suited for polyethylene insulated telephone cable, consists of a combination of 2 components: a low-resistance aluminum tape shield applied longitudinally over the cable core; and an extruded, high molecular weight, moisture- and weather-resistant polyethylene jacket. Flexibility of large size cables is assured by means of corrugations made in the aluminum tape at the time of application.

STALPETH

A Stalpeth sheath, which has a superior degree of protection against diffusion of moisture, is ideally suited as a lightweight sheathing for protection of paper insulated telephone cable: Stalpeth sheath consists of three components. The first is a corrugated aluminum shield tape applied longitudinally over the cable core. The second is a corrugated, coated steel tape applied longitudinally with the overlap seam continuously soldered. The third and final component is an extruded, high molecular weight, moisture- and weather-resistant polyethylene jacket, which is bonded to the underlying steel tape by means of a thermoplastic cement.

LEAD

The quality of General Cable's paper insulated lead sheathed telephone cable has been recognized over the years. The same high quality of cable core is maintained, regardless of the sheath design, through rigid manufacturing controls, testing and material specifications. Superior electrical performance is built into the cable core by means of planned engineering design. Paper insulated telephone cables are available in 6 through 2626 pairs in layer and unit constructions, quads, composites, and with video pairs. Cable is supplied with factory-applied pulling eyes and shipped under gas pressure at customer request.

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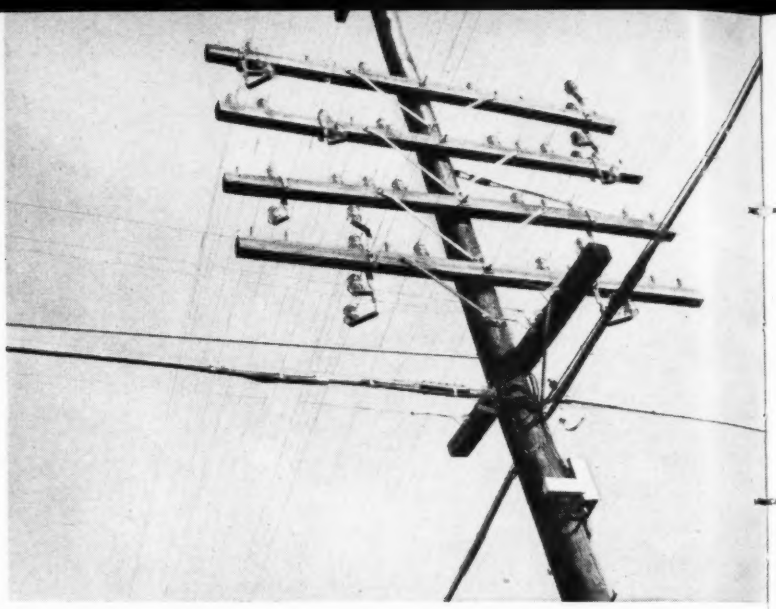
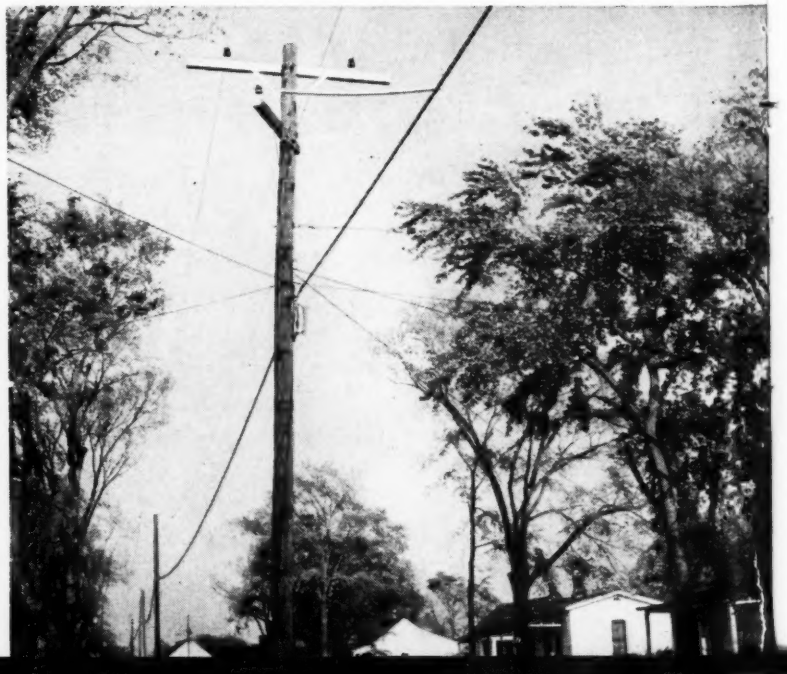


QUALITY AND LONG SERVICE

SUPERTEL

. . . WITH ALPETH SHEATHING

High quality transmission (equal to paper insulated telephone cable) is assured by General Cable's SUPERTEL thermoplastic telephone cable. The light-weight Alpeth sheath withstands abrasion, bending, effects of sunlight and chemicals, low temperature, deformation, and cracking. Available in 19, 22, 24 and NOW 26 gauge constructions to a maximum of 404 pairs.



DISTRIBUTION WIRES

RURAL and SUBURBAN

Black, high molecular weight polyethylene insulation, applied over the support wire as well as over the insulated conductors, has maximum resistance to environmental cracking, weathering and abrasion. Tough, abrasion- and weather-resistant color-coded PVC compound over the insulation of each conductor gives added protection as well as rapid, positive polarity identification. Staggered pair lays minimize crosstalk. Controlled cabling lay permits easy access to support wire. 19 gauge Rural Distribution Wire is available in 1 through 6 and 11 and 16 pairs. Suburban Distribution Wire, a first cousin of the rural type, is furnished in size 22 gauge in 6, 11 and 16 pairs.

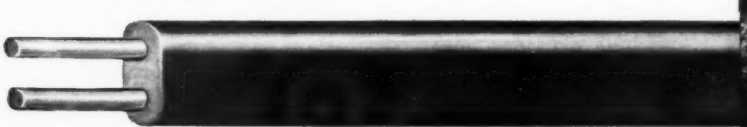
URBAN

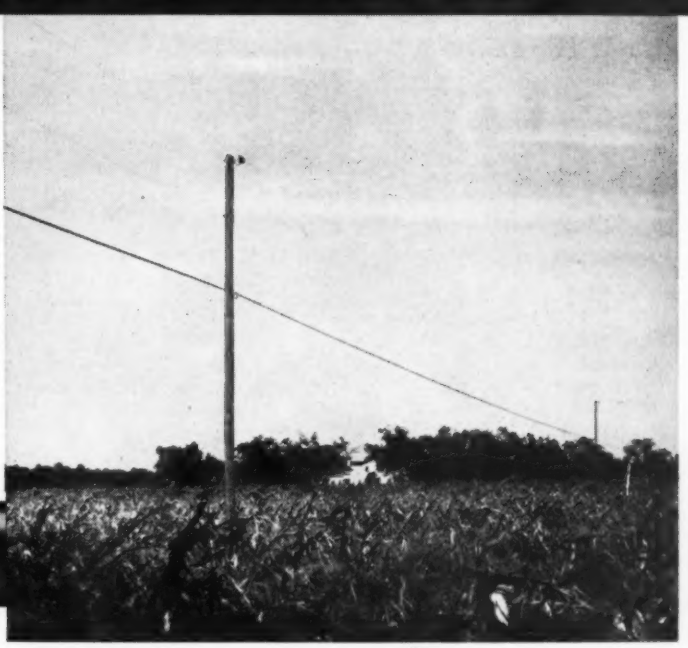
A specially-developed color-coded PVC compound provides extreme weather resistance to conductors of General Cable Urban Distribution Wire, assuring excellent electrical characteristics for the short spans common to Urban Wire use. High molecular weight polyethylene insulation is used over support wire. Staggered pair-lays minimize crosstalk, superior cabling lay permits easy attachment to support wire. Available in size 24 Awg, 16 pair only.

ONE PAIR PARALLEL

This is the latest addition to the family. High molecular weight polyethylene extruded over two parallel high-strength conductors provides a rugged, weather-resistant distribution wire of particular value for:

- laterals branching from open wire lines or cable terminals
- extension of existing lines
- addition of circuits to open wire constructions without adding crossarms
- long drops to subscribers remote from pole line
- joint use on existing power pole lines where mid-span hits may be a problem
- installations through trees which would otherwise require trimming for open wire lines.





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the reasons why...

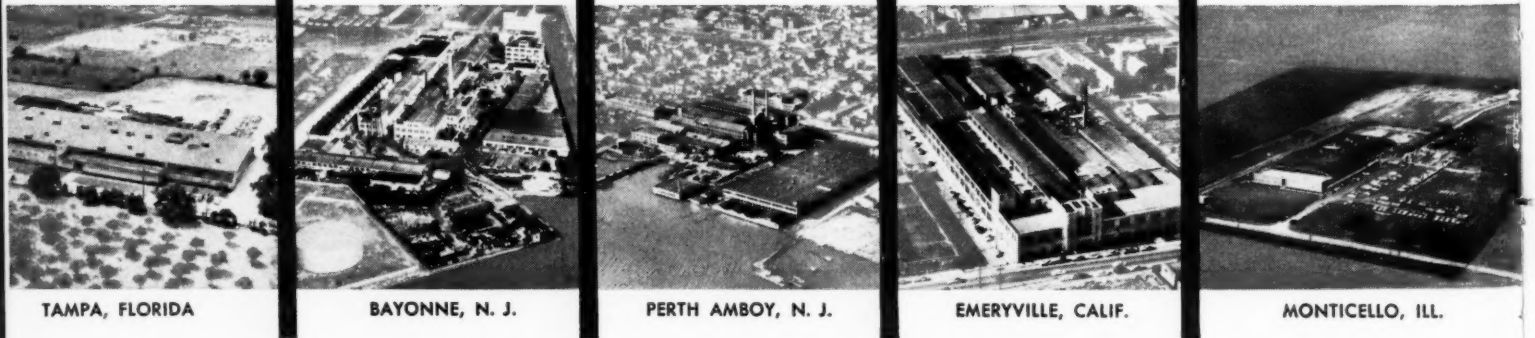
. . . With the most modern and extensive research facilities in the industry located in its Bayonne, N. J., Laboratory, General Cable constantly evaluates the present and future needs of the Independent Telephone Industry. To keep pace with these expanding needs, General Cable creates tomorrow's standards *today*.

. . . Years of research, development, and manufacture back up the unequalled quality standards of General Cable and provide the experience which is indispensable to progress.

. . . Complete process and final testing facilities at every General Cable plant insure compliance with all applicable standards. Characteristics such as capacitance unbalance are kept low to minimize crosstalk.

. . . Two new plants, now producing in Monticello, Illinois, and Tampa, Florida, in addition to extensive telephone wire and cable facilities in Emeryville, California; Bayonne, New Jersey, and Perth Amboy, New Jersey, provide manufacturing capacities and prompt deliveries adequate to meet the needs of the entire Independent Telephone Industry.

. . . In addition to these five plants, General Cable has thirteen other manufacturing locations producing building wire, power cables, bare and magnet wire.



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STANDARD OF THE INDUSTRY

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band, currently an important part of the spectrum for common carrier operation.

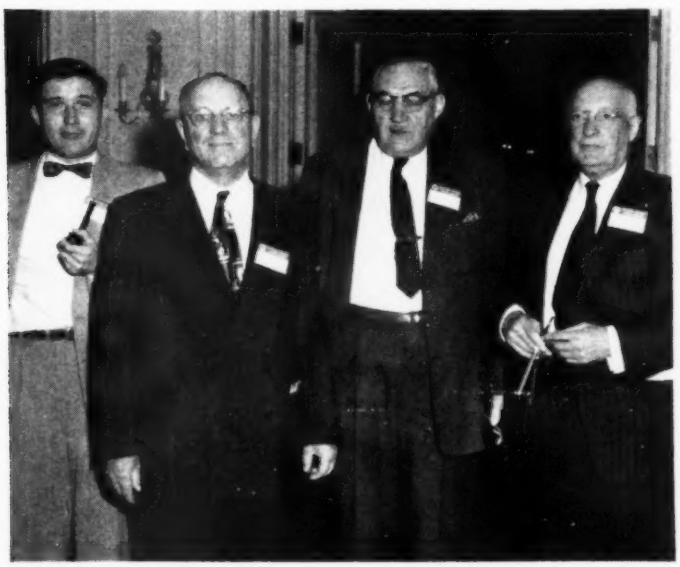
This band, as allocated, is shared with industrial, scientific and medical (ISM) on the basis that common carrier use will be on an interference free basis to ISM. However, to our knowledge, there have been no assignments under the ISM classification since the band was primarily allocated for this category at the International Radio Convention in Atlantic City in 1947.

It should be noted that the international aspect of this allocation does not prevent member countries in the Western Hemisphere from making their own assignments, if they see fit, and still be consistent with international regulations.

The recent petitions in Docket No. 11442, by industrial organizations to the FCC to be licensed in this band, are based on prior right by reason of the Atlantic City allocations and not on usage. One such application covers a high power domestic electronic cooker to operate on a frequency of 915 Mc, plus or minus 25 Mc, or in other words, the entire frequency band 890-940. Still another industrial organization has petitioned that this band be preserved for use in the processing of plastics, which again will occupy the entire band on a high power basis that will not be compatible with common carrier use. Both have arrived at the same conclusion, that the 890-940 Mc band now used extensively by the telephone industry is the optimum frequency band for the operation of kitchen cooking utensils and for drying purposes in the plastics industry.

This means, at least with the electronic cooker, with many scattered installations throughout the country, that common carrier operation on a secondary basis would be next to impossible. Your association has taken a determined stand with the FCC to maintain or improve our position in the 890-940 Mc band and have full hopes that this question, covered by Docket No. 11442, will be resolved in our favor.

Left to right: Paul Grauer of Wilson, Kan.; Mrs. Grauer; Inez M. King of Caldwell, Kan.; R. C. Reno, Editor of TELEPHONY, and J. B. Haley of Austin, Tex.



Left to right: Alvin Arbeiter of Chicago; W. F. Roberts of Lincoln, Neb.; H. C. White of Jamestown, N. Y., and Sam F. Nixon of Westfield, N. Y.

Last year at this time, it was indicated that strong representation was being made to the FCC by this association to correct a situation in which telephone common carriers were denied the same privileges as other utilities, such as power companies, in utilizing radio in connection with their own operations.

Specifically, a petition was filed by the association in Docket No. 10821, relating to the commission's rules and regulations governing the domestic public radio services and, again, in Docket No. 11435 in which it was proposed to amend the commission's rules and regulations so as to make communications common carriers eligible in the power radio services for radio systems to be used in construction and maintenance operations.

We are now pleased to report favorable progress in both cases. A report and order in Docket No. 10821, recently issued by the FCC, means that telephone companies are permitted to operate their own mobile vehicles for construction and maintenance purposes in the common carrier bands allocated for public service even if less than 50 per cent of the mobile units provided by the system are subscriber-owned vehicles, provided the company demonstrates that every reasonable effort has been made to develop public use of the service.

(Please turn to page 124)

Left to right: H. Y. Smith and P. C. Bransby, both of Columbia, Pa., and Walter Wright of San Angelo, Tex.

Subscriber Line Carrier

By PAUL MURPHY
Telephone Service Co. of Ohio
Lima, O.

(A Plant Conference Address)

ALTHOUGH there are only a few short months between conventions, many new developments, refinements of these developments, and more extensive application of these developments take place. A development which has been applied somewhat in the past, but which will be applied in ever increasing quantities in the future, is "Subscriber Line Carrier."

What is this development? It is equipment, principally designed for subscriber usage and utilizing the principles of "carrier" telephony, to efffectively increase the capacity of existing cable or open wire facilities by providing additional communication channels.

Typical uses for this equipment are:

(1) Providing service to held order subscribers where vacancies on physical facilities are not available.

(2) Allocation of physical facilities for special uses such as paystations, radio loops, etc.

(3) Meeting new housing developments on a temporary basis.

(4) Providing temporary service for construction camps, resorts, etc.

(5) Providing private lines, two-party lines, etc., to rural subscribers to up-grade service.

Subscriber line carrier has been developed to provide service to subscribers of magneto, automatic, and common battery type exchanges and providing for their respective types of signaling systems in use.

Telephone Service Co. of Ohio has made applications of subscriber line carrier, and additional applications will be made in the future where installation of this nature proves in.

One such application was to provide two private lines to construction engineers at the new Ford Motor plant in Lima. Delivery of cable plant to reinforce present cable facilities from our Lima exchange to this site could not be accomplished prior to the time that construction was to get underway. Although there were vacancies on rural lines near this site, a higher grade of service was desired. The installation of subscriber line carrier not only made it possible to provide the ultimate grade of service desired, but at the same time built a solid foundation for future relations with that company.

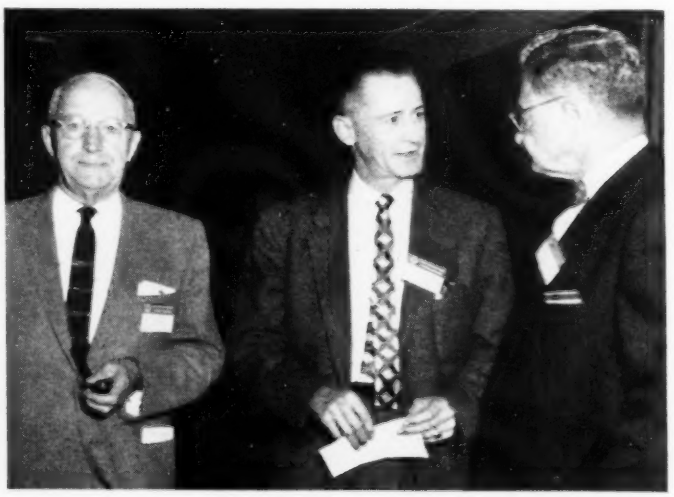
Telephone Service Co. of Ohio operates 138 exchanges within the state of Ohio. It is reasonable to assume that the problems and conditions existing within this area, and those existing within areas where other telephone companies operate, are widely varying and require different solutions. That medium, which may prove in within one area as a means of extending service to a subscriber, may not be adaptable in another area.

To best determine the feasibility of subscriber line carrier for a particular project is to weigh the basic reasons for selecting one medium over another medium, for example:

(1) Equipment costs.
(2) Ease of installation.
(3) Reliability and maintenance costs.
(4) Expandability and flexibility.

The equipment cost is necessarily related to each particular installation. Each installation must be considered and evaluated separately just as considering and evaluating an expansion of cable plant, open wire plant, or the installation of a radio system. It only may be necessary to install a carrier terminal in a central office and a carrier terminal at the outlying subscribers' premises with line filters, protection, and common equipment at each terminal, however, such installations may require the equipment to be pole mounted in special cabinets at one or both terminals and such additional equipment as way station filters, transfer filters, and auxiliary power supplies. In any event, the expenditure may be substantially less than that required to provide comparable service through the expansion of cable or wire line facilities or the installation of a radio system.

(Please turn to page 126)



Left to right: J. W. Baker of Coeur d'Alene, Ida.; D. W. Haskins of New York City, and Walter Dakin of Madison, Wis.

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A New Era in Communications

By B. C. BURDEN, Consulting Engineer
Lincoln, Neb.

With an Appendix by

PAUL HENSON, Chief Engineer
Lincoln (Neb.) Telephone & Telegraph Co.

(A Plant Conference Address)

IN CONSIDERING which of the many new developments would be worthy of discussion before such well-informed telephone men as yourselves, your sub-committee was impressed by the fact we are apparently on the verge of what may properly be termed "a new era of communication."

In the past, we have become accustomed to a steady and constant improvement in the equipment which goes into telephone plant. On the whole, these improvements have not materially changed the general character or basic concept of the components or complete systems with which we work. Direct current and electro-magnetic relays have been and still are the backbone of our telephone exchanges.

But, it would now appear we are fast approaching the time when we may pass from the direct current and relay phase into a new period in which electronics will play the major role. The tremendous impetus given technical research by World War II, plus the remarkable recent developments and improvements in the silicon crystal family, have combined to give us some remarkable new tools which will undoubtedly change our whole equipment picture.

The far-reaching impact on the future of our industry by one single development, the transistor, was aptly expressed in a recent speech by Dr. M. J. Kelly of Bell Telephone Laboratories. Speaking of this minute bit of solid state material, he said:

"This device is one of those big 'break-throughs' in science, which occur only at rare intervals. Just as the vacuum tube and relay symbolize the past era, so will the transistor symbolize the era now beginning to unfold. The transistor and its minute relatives will almost certainly stimulate as great or greater changes in commerce and industry than reaction motors, synthetic fibers, or even perhaps atomic energy. In the transistor and the new solid-state electronics, man may hope to find a brain to match atomic energy's muscle."

The actual and potential effect on our business of current electronic developments and new circuitry techniques can best be appreciated by considering some of the basic building blocks in this electronic future which lies ahead.

Potential Applications

The greatest single factor that may radically change our entire equipment picture is the *transistor* and its twin brother, the crystal diode. The transistor is barely eight years old today, but it is no longer a novelty and is now being used in everything from concealed hearing aids built into a pair of horn rimmed eye glasses to the giant electronic computors which execute in a split second computations which would take many men many hours. The transistor has even attracted the interest of the press—feature stories appear in such magazines as *Fortune, Business Week* and other publications on this tiny newcomer to our business.

The transistor and other members of the silicon family are bringing a new and reduced dimension to all types of equipment.

Let us examine its various potentialities in our business:

(1) Electronic switchboards which transistors and diodes make possible will, in time at least, supplement if not replace present types of boards. Some of the basic considerations of electronic switching are discussed in a special appendix to this paper prepared by Paul Henson, chief engineer, of the Lincoln (Neb.) Telephone & Telegraph Co.

(2) Transistors should enable subscribers' sets to be made smaller in size yet more efficient in transmission. The carbon type transmitter may in time give way to the dynamic type with a tiny transistor making up for the low level output of these more stable transmitters. The electro-magnetic ringer may enventually be replaced by a transistorized "beeper."

(3) Heavy multi-wire rural leads will give way to simple two-wire lines with pole mounted transistorized subscribers carrier channels supplying the needed circuits in place of a multiplicity of metallic wire lines.

(4) The picture telephone, whereby we will see as well as hear and talk, will become a reality. Picture telephones are already being tried out on an experimental basis. A promising development in connection with this innovation is a new technique, whereby a picture with adequate detail can be transmitted over the ordinary long distance voice circuit. The frequency band required for picture transmission is reduced to 3,000 cycles or less by cutting down the picture detail and sending a picture every two seconds instead of continuously as in television.

Here again the transistor would be the tool which would keep the picture telephone to reasonable dimensions.

(5) Transistors are a natural for test equipment, particularly the type carried into the field. One thousand-cycle transmission oscillators, cable fault tone sets, exploring coil amplifiers can all take full advantage of the size-weight design advantage which the transistor makes possible.

The applications just mentioned are but a part of the uses to which this one simple development will be put in the years immediately ahead. It is easy to see why the head of Bell Laboratories regards the transistor as a "breakthrough" into a new era.

Every plant man should recognize that transistors, diodes, and silicon rectifiers will in the future be just as common as relays are now, and he should start immediately in becoming

XUM

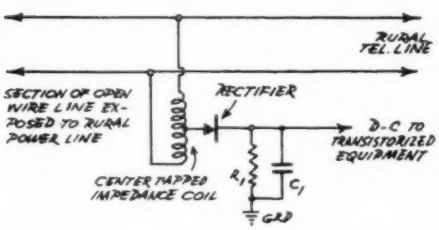
familiar with the operating characteristics of these marvelous new electronic tools.

Miniaturization Trends

Since World War II, we have seen a trend toward putting more and more in less space. Solid state transistors and diodes gave us a big push in the direction of more elaborate equipment in smaller space. The *printed circuit*, plus development of new baby size components such as resistors, capacitors and transformers, are giving us a further shove in this direction. This trend toward more and more in less and less is referred to as *miniaturization*.

The earth Satellite project, the need for adding additional protective electronic gear in commercial air liners and other similar projects will be a further stimulus toward putting electronic units in a fraction of the space they now occupy.

I recently attended a radio parts



Free power for transistorized repeaters or carrier systems obtained by rectifying induced 60-cycle power voltage on telephone line. Courtesy, Bell System.

show in Chicago. I saw some amazing examples of molded terminating equipment in which 24 contacts occupied a space no larger than six contacts would in present-day telephone equipment.

This miniaturization trend is one which many engineers are already taking into account in planning future central office additions. It is reasonable to conclude that telephone equipment design will follow the miniaturization trend in the electronic field. Carried to its maximum, it might well mean that a future 10,000-line office need be only one-half the size of present offices.

Consider for example—what a reduction of say 50 per cent in the space occupied by main frame terminations would mean in a large central office. A reduction in central office size made possible by miniaturization would offer savings not only in initial building costs but in lighting, air conditioning and general maintenance expense. However, on the other side of the coin, we must recognize that while components are getting smaller we are adding more and more features, hence, there may be an offsetting trend which will absorb our saving and possibly result in offices as large or larger than those now required.

The Solar Battery

Man has long been attracted by the possibility of extracting usable amounts of energy from the sun. For a variety of reasons a practical solution to this problem has not been forthcoming, but a step in this direction was last year's announcement of the solar battery. Although this new power source produces relatively minute amounts of power as most of you know, it is already being tried out in the form of pole mounted transistorized solar-powered subscriber carrier systems.

It is within the realm of reasonable conjecture that the solar battery could be so improved and so refined that in the years ahead it conceivably could power an entire central office, particularly if the power demands were reduced to a fraction of their present level by use of electronic switching. However, I feel the possible real field for the future solar battery will be in supplying energy to pole mounted equipment such as repeaters, carriers, etc., and not in supplying central office energy.

Free Power

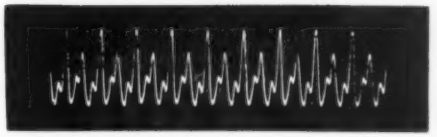
New and remarkable developments in the electronic field now occur so frequently and with such regularity we now take them in our stride and without surprise. In spite of our sophisticated attitude toward new developments, I was startled to learn from the August issue of a leading electronic magazine that radio sets have been built which operate on *free power*.

Free power refers to a new development whereby transistorized radio sets (both receivers and transmitters) are powered by energy obtained "free" without benefit of solar cells, batteries, or other well known methods of producing power.

Several methods are available whereby electrical energy sufficient to energize low power requirement devices can be obtained. These are:

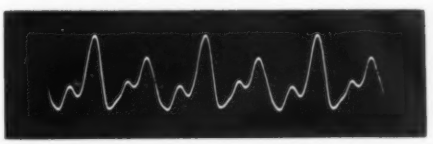
(1) Utilization of the energy in sound waves. This is accomplished in a miniature radio transmitter by simply connecting the electrical output of a sound powered microphone into a miniature power pack where the alternating current voice waves are rectified by crystal diodes into direct current and used to charge a capacitor. The alternating current voltage built up across the capacitor is at the same time modulated by the voice waves and applied to a transistor oscillator output unit. The power output of the arrangement is, of course, very low but sufficient to transmit an RF signal over a distance of several hundred yards.

(2) The second method of obtained

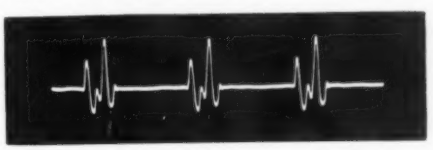


Vibrations of the sound "or" in the word "four." Pattern represents nine of the "pitch periods" which originate in puffs of air from the larynx when a word is spoken.

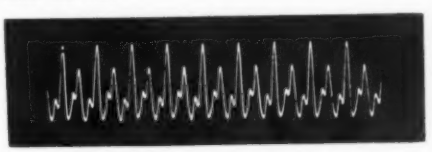
An electronic sampling of the "or" sound. One "pitch period" in three has been selected for transmission. This permits great naturalness when voice is rebuilt. Intelligible speech could be sent through a 1 in 6 sampling.



The selected samples are "stretched" for transmission. They travel in a narrower frequency band than complete sound.



Using the stretched sample as a model, the receiver restores original frequency. In all speech, sounds are intoned much longer than is needed for recognition—even by the human ear. Electronic machines perform recognition far faster than the ear.



The receiver fills in gaps between samples, recreating total original sound. Under new system, three or four voices could travel at once over a pair of wires which now carries only one—and come out clearly at the end!

Illustration showing how speech can be compressed into smaller frequency band by the sample transmission method.

free power for operation of low energy transistorized equipment consists in rectifying an incoming RF signal from nearby radio station then using the rectified power to energize a small radio set turned to any station. This could conceivably raise a delicate question of ethics—for example, the propriety of using free power from an NBC station to receive a program from CBS affiliate.

Pole Mounted Equipment

You may well ask, "What does free power and radio sets have to do with the telephone business"? Well, the connection is somewhat nebulous, but nevertheless pertinent and I hope interesting. Pole mounted transistorized rural subscribers' carrier systems are now undergoing field trial. One of the problems is that of providing energy for the carrier unit. Solar cells used in conjunction with small storage bat-

teries are one solution and are being tried out.

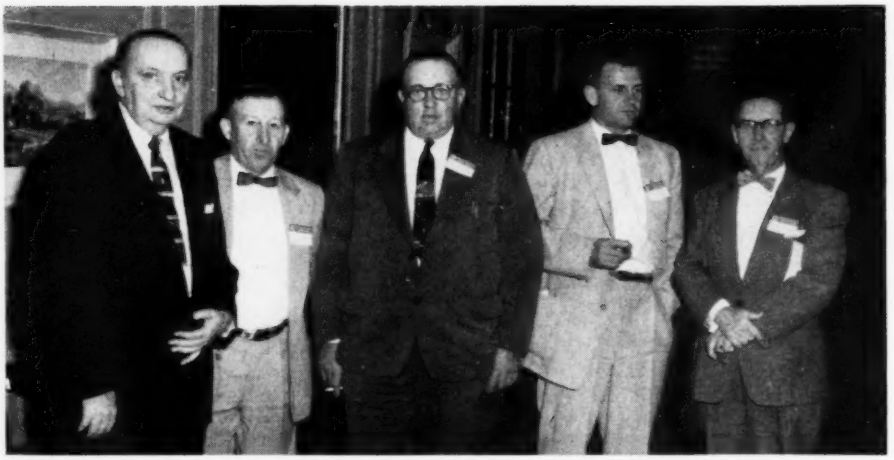
However, it occurred to me that if free power can be taken out of the air from a broadcasting station, then, we in the telephone business could, if we saw fit, utilize the free 60-cycle power available on practically every rural telephone line in the country. I refer to the induced power voltage due to electro-static and electro-magnetic coupling between telephone and paralleling rural power lines.

I have not been "hitting the weed" when I suggest that there are very few of our rural lines which do not have sufficient induced ac power available to power a transistorized subscriber's carrier unit or a voice repeater.

The fact that substantial voltages are induced on virtually every rural telephone line is well known. I have personally checked dozens of rural telephone lines and have found the average farm line involved in an average rural power line parallel situation will show induced voltages ranging from 10 to as high as 100 volts (when measured with a high impedance voltmeter).

I have seen numerous cases where neon type isolating, one and two-watt bulbs used in grounded ringers in subscriber's sets (to isolate the line from ground) would remain ionized after a ringing pulse. The amount of power required to ionize a neon bulb, while small, would be more than adequate to power a piece of transistorized equipment. The fact that neon bulbs can be operated off voltages standing to ground on a telephone line proves the adequacy of this free power.

This induced voltage might be placed on our rural lines, if it was kept from causing excessive interference by being kept balanced to ground on the two sides of a line. If it were used to power a pole mounted rural subscriber carrier system, it could be drained off in a balanced simpler type leg, thence through a diode rectifier, a dropping resistor and on to ground. I am not seriously suggesting we may in the near future be utilizing this unwanted free power present on our lines but, as Herb Shriner says, "it's possible."



Left to right: John F. Hinkle of Columbia, Pa.; H. L. Brown of Gibsonia, Pa.; E. H. Cole of Wexford, Pa.; E. E. Mallar and M. T. Lipsett, both of Woodburn, Ind.

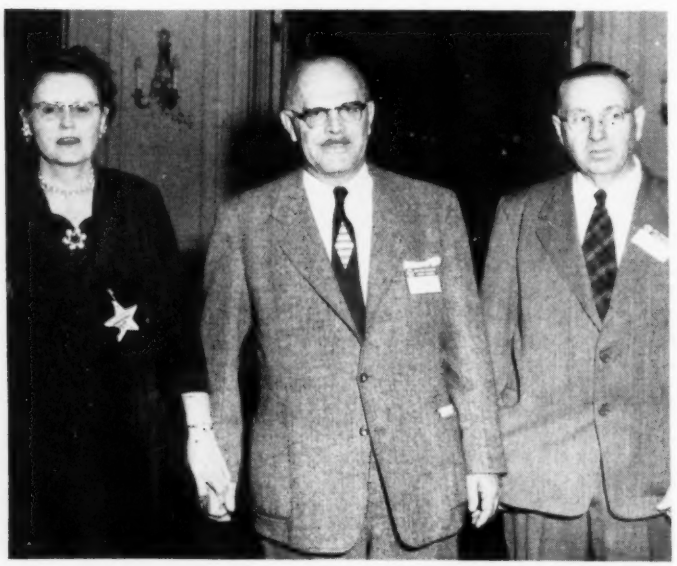
Electronic Computers

The new and amazing electronic computers which enables man to do in seconds what formerly would have taken months have a definite place in our future. These remarkable electronic brains are already being used by our accounting and statistical people. But of equal or even greater importance, they are creating a new demand for private wire circuits between cities. The current trend toward decentralization of large manufacturing companies, and the scattering of small factory units over a wide geographical area, is resulting in the parent company buying a single expensive and elaborate computer which is then made available to the outlying plants and subsidiaries via private wire service furnished by telephone companies.

Typical of the close tie-in between the telephone business and the marvelous new electronic computers is the recent announcement of the IBM's "*data transceiver.*" This device is designed for direct connection to telephone lines for the purpose of sending or receiving information from punched cards which on arrival at the main headquarters is fed directly into a computer for solution or processing.

Thus, an expensive computer can be made available to companies in any section of the country via ordinary long distance lines by means of this new *transceiver.*

The extreme speed and versatility of the electronic computers is shown by a new IBM computer which, in 22 seconds, can solve 30 simultaneous equations involving 54,000 multiplications and the same number of additions. This same job would require a trained engineer with a desk calculator, working at top speed 24 hours per day, over 13 days. The magnetic-tape memory unit of this new machine can store for later use or consideration almost 4 million two-digit numbers or words.



Left to right: Mrs. Paul H. Kaufman and Mr. Kaufman of Bellevue, O., and Roy E. Brandel of Mt. Pleasant, Ia.

Over The Horizon Radio

Radio channels are being used more and more for point-to-point toll circuits in both Bell and Independent plants. It was only a few years ago that the use of radio in our toll plant was for unusual links between points difficult to serve with wire lines. The current availability of reliable microwave radio link equipment at reasonable cost now justifies application studies when existing wire lines require reinforcement or new circuits must be established between points not now served.

A new technique in the use of what are normally considered line-of-sight radio channels has been developed and is known as "over-the-horizon" transmission. It is also sometimes referred

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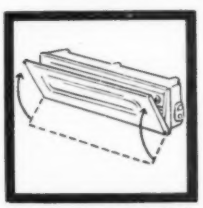
STRAND MOUNTED TERMINALS

Whether the plant employs protected or unprotected type cable terminals the design and dependability of the Reliable Strand Mounted Terminal upholds a forty-eight year old reputation for thorough engineering and thoughtful design.

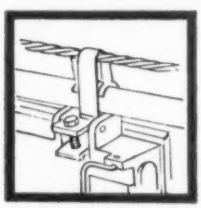
For example: The silicon bronze binding posts on which the cable stub wires are terminated are sealed, with the wires, in a glass-reinforced, polyester resin—a material with exceptionally high dielectric qualities. To minimize, if not actually eliminate surface leakage, binding posts are generously spaced ($1^{1}/_{16}$").

Where protection for either the cable or the station is desired the new Reliable Fuseless Protector Unit will dissipate static discharges across the elements to ground. With repeated heavy discharges, with fault currents or with power surges, carbons are shunted as the attendant heating permanently closes a metallic circuit to ground. Illustrated information will be mailed on request.

Protector unit—No. 506 for cable, No. 504 for station.



Positive closing patented cover opens—closes easily.



Single screw clamps tighten and lock mounting strap

Reliable

RELIABLE ELECTRIC COMPANY CHICAGO

to as "scatter transmission." Essentially, the new method involves the use of very large parabolic dish type antenna plus exceptionally high transmitted power. The transmitted waves take off at many different angles of radiation resulting in some of the signal being reflected back to earth at a substantial distance beyond the horizon.

Extensive tests have proven this type of radio link sufficiently reliable to warrant its use for some situations where a long single hop is desirable and the higher expense of the terminal equipment justified.

For example, the Bell System has recently installed a link of this type between Florida City and Havana, Cuba, a distance of well over 100 miles.

Telephone Shorthand

As you all well know, a frequency spread of roughly 2,700 cycles is used for the satisfactory transmission of telephone conversation. If the channel width for one conversation could be cut to say 500 cycles this would mean that many more circuits or channels would be available over existing facilities.

Laboratory experiments have been underway for some time in an effort to cut channel width without affecting the intelligibility of the transmitted signal. One promising approach being pursued by the Bell System is a sort of telephone shorthand. They propose to "snip" off a sample of each recurring speech sound which is then transmitted to the distant office where it is reconstructed in its original form. Initial experiments indicate that a one in six sampling is adequate to convey intelligible speech.

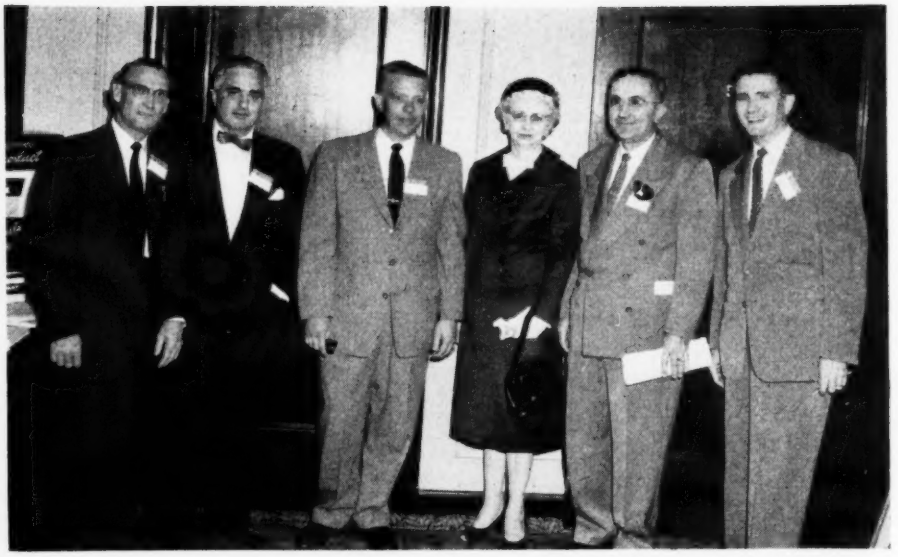
Thus, if and when, the new system is availabe, we may be able to get from three to four channels from every existing voice channel.

Electronic Switching

For the past 10 years, we have been hearing predictions of wonderful new electronic switchboards. As you will find out when you visit the exhibits, they are now an accomplished fact.

These early models are but the forerunners of a vast new concept based on an involved mathematical theory which states that all forms of information can be expressed or measured quantitatively and translated into electrical terms of "pulse" or "no pulse." Thus, written words or even the information contained in the sound of the human voice can be translated into a series of pulses.

These pulses flowing into transistors and diodes, which bar or open passage through, and into capacitors (or other media) which by charging or not charging, serve to switch, memorize and accomplish with lightning rapidity, the same functions accomplished by the slower electro-magnetic relay switching systems.



Left to right: H. D. Clark of Mattoon, Ill.; George Hamburger of Washington, D. C.; L. E. McGuire of Seattle, Wash.; Mrs. Carl T. Moore of Harrison, Ark.; Mr. Moore, and E. White of Richmond, Va.

One prominent engineer predicts that the electronic switchboard of the future will be 75 per cent smaller than existing boards. He further predicts that the nature of the new electronic components is such that many new services not possible with electro-mechanical systems will be a "push-over" for these boards of the future with their electronic logic and memory features. How long before these boards of the future with their electronic logic and memory features will be available is anyone's guess. Some predict two years, others five; many say, "there will always be a relay," but one thing is certain, electronic boards will definitely be a part of our future.

R. A. Gantt (left) of New York City and R. R. Miller of Lafayette, Ind.

Memory Storage Units

Those of us that have spent the last 30 or 40 years in the telephone business have long since become familiar with the electro-magnetic relay and the heated cathode vacuum tube. The transition in our thinking to the solid state devices such as the transistor and silicon diode has not been too difficult but now we are confronted by a variable host of new terms, concepts and equipment units.

If we are to keep abreast of the march of new electronic developments which are bound to affect the whole future equipment picture, we must become familiar with the various pieces which make up this gigantic electronic jig saw puzzle which is now beginning to take shape.

In reviewing dozens of technical publications in an effort to select and boil down for this paper those developments which may and surely will affect our future, I noted many references to *memory storage* devices. Because these devices will play a part in future electronic telephone switching systems, I felt they were worthy of mention here.

As the name suggests, these memory devices are simply an electronic means of storing pulses. The exact form may vary from tiny magnetic cores arranged in a rectangular crossbar which are magnetized or demagnetized by current passing through them, to a cross hatched arrangement of crystals which can retain (until erased) information in the form of pulses which are impressed on them.

We will see more of the unusual

(Please turn to page 108)

Report of USITA Commercial Committee

By K. L. LAWSON
Chairman

YOUR Commercial Committee has devoted the major portion of its activity to the field of new tariff regulations, particularly to those which deal with abuses or fraudulent use of telephone service. Attention has also been given to the development of uniform commercial practices and standard forms which may be adopted and used by companies throughout the country.

These activities are of special importance to small companies. Your committee finds that many of these now wish to establish a tariff of general rules and regulations governing the furnishing of service, as well as a written procedure covering standard and accepted commercial practices.

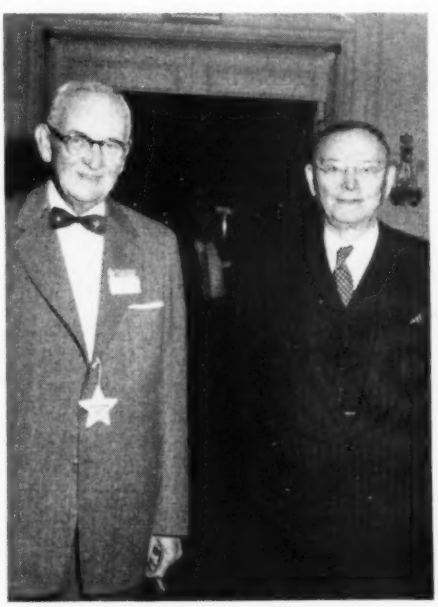
In the field of telephone abuses, your committee is giving all possible assistance to telephone associations or companies which are endeavoring to establish regulations for the prevention or control of undesirable uses of long distance service. The annual loss from such practices is estimated to run into several millions of dollars, and there is evidence that such tactics are increasing.

On the favorable side of the picture is the increasing awareness of companies, commissions and legislatures to the seriousness of the situation and their consequent efforts to curb prevailing practices. *The Wall Street Journal* recently published a story which stated that 47 out of the 48 states had passed laws making it a punishable offense to cheat telephone companies by placing illicit long distance calls. Wisconsin is the only state which does not have such laws.

Many telephone companies have also asked and received authority from their state regulatory bodies to take appropriate measures against offending customers. Although it is rarely necessary, the ultimate extent of such punitive action is to deny service to offenders. Such filings are important and essential, because in their absence some customers take the attitude that they are guilty of no wrong in placing fictitious calls to avoid payment of charges.

To detect the offenders it is necessary that telephone companies cooperate to the fullest extent in preparing tickets on all incompleted calls. These tickets are then sent to the terminating point and by this accumulated evidence the extent of the practice can be determined and evidence presented for successful punitive measures.

Since offenders frequently are large toll users, the conducting of interviews presents a delicate responsibility to telephone management. In this connection the quoting of a tariff filing is most helpful.



A. H. Vorum (left) of Chicago, Ill., and J. W. Wopat of Fair Haven, N. J.

Another serious abuse that is costing telephone companies much revenue is the publication of competitive telephone directories in various forms, such as "criss-cross" directories, rural county directories and other publications making use of telephone numbers. The sale of sufficient advertising to make quick profit is generally the principal motivation of such publications. Most of them contain many inaccuracies with respect to telephone listings and are generally undesirable from the standpoint of good telephone service. Such publications frequently are compiled from the telephone company's directory which constitutes a violation of copyright. In this connection many companies have found it helpful to carry fictitious listings in their directories. These may be used as evidence of violation in case they are printed in other directories.

The representatives of novelty houses are also very active in the sale of directory covers. These practices should be resisted vigorously at every opportunity because they represent a very definite monetary loss to legitimate directory revenue.

Here again proper tariff filings with respect to use of directories is imperative in order to successfully combat unfair competition. Your committee stands ready at any time to give assistance to companies with respect to tariff filings. Suggested wording is available for tariff filings covering practically every form of abuse.

Some progress has been made in the accumulation of a set of commercial forms which it is believed can be used by any company regardless of size and location. Other forms may be useful with slight modification to fit any company's needs. It is expected that your committee will complete this work during the coming year.

The Control of Telephone Abuses

By F. MARK CLARK
Rochester (N. Y.) Telephone Corp.

(A Commercial Conference Address)

THE WORD, abuse, is generally used in our business to describe situations caused by subscribers which—

(1) Damage instruments or facilities.
(2) Increase maintenance or other expenses.
(3) Alter the scope of services.
(4) Reduce revenues.

In short, whenever customers' actions adversely affect our operations we say that we are abused.

Since our purpose here is to discuss the control of abuses we should be aware, at the outset, that the exercise of control carries with it certain responsibilities. For example, whenever we restrain a customer from an abusive act we must be prepared to give the same treatment to all others who are found guilty of the same offense. If we fail in this, we can be accused of discriminating. Consequently, it appears that the mechanics of control must also provide the ways and means to give equal treatment to all offenders, in order that we shall neither abuse nor be abused.

As a starter, suppose we try to get the control problem into focus. It seems to me that abusive practices can be classified into two groups, namely, those which result from malicious intent and those which are caused by a failure in the administration of some phase of our operations. We can protect ourselves against the abusive acts of persons who willfully smash equipment, stuff coin return chutes, use slugs at coin telephones, or evade responsibility for the payment of just charges, etc., through legal procedures.

But, the control of those abuses that grow out of administrative failures depends upon the correction of the causes of such failures. Since this is the area of the problem over which we have complete control, it seems reasonable that we should confine our attention during the next few minutes to a consideration of the principal causes of such administrative breakdowns and the means available to us for their correction.

One and possibly the main cause is that management has failed many times to specify in writing the limitations of the various services it offers. As a consequence, customers have been invited to shape the scope of service offerings to fit their needs, and in the absence of adequate guidance from management, employes have cooperated with customers to extend the range of services to the point where the resulting situation was regarded as an abuse.

For example, a few years ago, it became apparent that our employes were accepting orders for extension telephones and additional listings in business places for persons who were not members or employes of the subscriber's firm. This meant that we were furnishing business telephone service for the price of an extension station and an additional listing. When management became aware of the demand for such installations the number had become substantial, and it was apparent that firstly, revenues were being adversely affected, secondly, we were discriminating against business subscribers, thirdly, employes had not received adequate information and guidance to prevent or minimize the growth of this abusive practice, and fourthly, we had failed to offer a service that would meet the needs of persons who shared the same quarters with one of our business subscribers.

This problem was solved by furnishing employes with better guidance for carrying out management's intentions regarding the provision of business extension stations and additional listings, and at the same time Joint User Service was introduced to provide for the needs of certain users and remove the element of discrimination from our practices. Incidentally, the new service was priced so that the differential in cost, between the rate for a business extension plus the rate for an additional listing and the charge for joint user service, was modest. In this manner, users were encouraged to have their own business service and revenues were protected.

As I look back over the years, it seems to me that the administrative failures which preceded the introduction of Joint User Service are fairly typical of those which were evident when other abuse situations were recognized. If that is true, then it seems safe to assume that when management fails in any or all of the following respects abuses are invited:

(1) Failure to give employes sufficient background information and guidance.
(2) Failure to offer new services or to change existing services in time to head off the development of abuse situations.
(3) Failure to give sufficient weight to possible customer reactions when charges are established.

With these thoughts in mind, let's consider ways and means of controlling the abuses with which we are concerned. Firstly, I suggest that we regard every apparent abuse as a friend in disguise —a friend that may be telling us, if we listen with an open mind, that our figurative slip is showing, and that somehow the abused service may be failing to satisfy our customers' needs. In other words, the occurrence of an abuse should stimulate us to do more than simply find a way to prevent its

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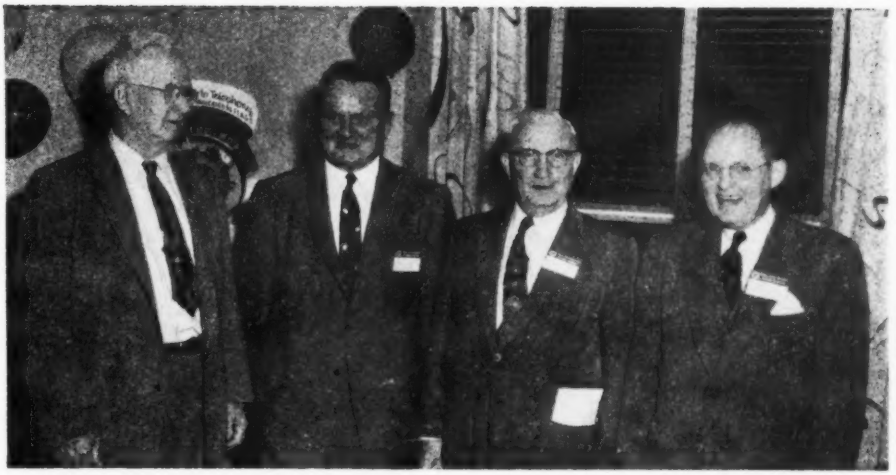
recurrence. Instead, it should challenge us to examine the abused service to see if it can be changed for the mutual benefit of our customers and ourselves, or if a new service would deter customers from the objectionable practices.

Many of you will recall that long before the present-day emphasis on color one of the prevalent abuses was that our best customers were painting their telephone sets. Faced with this situation, the telephone companies joined with Mr. Ford and resisted by making the charges for special colors prohibitive. In the end, the problem was effectively solved, way back in the 1920s, by offering a better and more enduring color selection for a reasonable price.

Many of you will remember that, during the war, recording devices were hitched to telephone lines in every plant handling war contracts. At the end of the war, there were literally thousands of business men who were sold on the idea of recording telephone conversations, and they wanted to continue that practice. Telephone companies again resisted, but in the end the problem was solved by providing recorder connectors with a "Beep" tone for a price.

Within the past two years, the abuse of message toll service has commanded considerable attention. The companies have again resisted by defining more clearly in their tariffs what constitutes an abuse in this area. However, at this time, it cannot be said that this problem has been settled. There are those who feel that this abuse was invited when the report charge was abandoned, and that it will continue until the message toll offering is amended to provide the service features which are wanted. In this connection, think for a moment about the possibility of offering a signaling service similar to that provided with mobile service. Would that offering meet the need for something less than station to station service?

There is an old army saying which we might do well to recall when we are confronted with an abuse. It goes something like this, "They can't make you do anything, but they can make you wish you had." On this score, there is plenty of evidence to show that we have frequently taken the long hard route to find the easy solution for many an abuse problem.



Left to right: D. J. White of Fairfield, Ia., J. L. McIntyre of New York City; Nate Baldwin of Cleveland, O., and E. F. Schultz of New York City.

What I have been saying is that the easy way to correct abuses is to nip them in the bud by giving customers what they want and are willing to pay for. Before we leave this approach to the solution of abuse problems, let me remind you that this method is not limited to the introduction of new services. For example, we may be spending more time and money to defend some practice or charge than would be lost if we liberalized our offering and removed the invitation to abuse.

Not many years ago the installation of jacks in homes was surrounded with many restrictions because it was felt that they reduced the demand for extension telephones. The administration of those regulations was a costly undertaking and not too effective. The latest idea is to permit them without restriction, and to the best of my knowledge, the demand for extensions has risen rather than decreased. In my state, I have never heard of the regulatory body objecting to a company taking a more liberal attitude with respect to its rates or the regulations governing its service offerings.

Now, let us take a look at pricing, or rating, as one of our tools for controlling abuse. Most of us have the party line abuse problem, and it happens that this is one of the areas where proper rating can simplify corrective action. Suppose you have a heavy party line user who complains that he has difficulty getting the use of his line. You might persuade him to take a better grade of service and solve your problem if the differential between party and individual line rates does not present too much of a hurdle. If this idea appeals to you, take a look at your differentials when you make your next rate change. By the way, changing the differential does not imply that the individual line rate should be reduced.

Now, suppose we review the points that have been covered so far. It has been suggested that when apparent abuses come to our attention we should approach the situations with an open mind and ask ourselves these questions in each case:

(1) Does the service meet the public need?

(2) Is it rated to encourage acceptance and discourage abuse?

(3) Are the governing regulations simple and easy to administer?

If the answers are yes in each case, then we must ask ourselves the $64 question: "Do our employes know the scope and limitations that the management has in mind for the abused serv-

(Please turn to page 128)

Left to right: F. R. Harris of Jackson, Mich.; Don K. Carlson of Morenci, Mich.; M. A. Hornyak and Don Richards, both of Erie, Pa.

NORTH *Color-tone*

merchandising "sells" extensions in color...

In NORTH COLOR-TONE Telephones you have the finest standard telephone instrument available to any Telephone Company. Colors are fresh and modern. Reception and transmission qualities are unsurpassed.

AND the COLOR-TONE Merchandising Plan gives you a planned, tested program to promote extension telephone installations in COLOR-TONES.

Colorful mailing pieces and displays—hard-hitting newspaper ad mats—a complete publicity campaign—and a "Blueprint for Sales," showing you exactly HOW and WHEN to use each merchandising aid, step by step, to achieve maximum impact, full area coverage, and how to get revenue increasing RESULTS.

COLOR-TONE Telephones and the COLOR-TONE merchandising program are available from NORTH ELECTRIC COMPANY.

NORTH ELECTRIC COMPANY

GALION, OHIO

Better Commercial Performance Through Good Commercial-Traffic Relations

By L. W. CLEVELAND
Lincoln (Neb.) Telephone & Telegraph Co.

(A Commercial Conference Address)

THE KIND of gas we use in our cars today usually determines the performance. I find that I can get places OK in my old Buick with gas of any kind but the high powered, anti-knock fuel additive referred to in Nebraska as TCP makes the old buggy purr right along without a knock, at a much smoother rate of speed, so I like to use TCP.

I propose to relate this anti-knock, smooth operating element into our telephone considerations. We are all in the process of driving ahead. Why not consider using TCP (Traffic—Commercial—Potential) in our telephone business? We'll find it smooths out operating efficiency, results in fewer customer knocks and we can develop a greater speed of service.

I feel that I have been close enough to traffic-commercial problems during the past years to suggest that there is a broad area where more effort can be expended on the part of commercial and traffic people to bring about an improvement in the overall commercial performance of most of the Independent companies in the industry. The term "Commercial Performance" is rather broad. So that we might have an initial point from which to proceed, I should like to confine my remarks to those two commercial functions where I believe the traffic department can best assist; namely, *Commercial sales and public relations.*

The introduction of the traffic department into commercial sales performance has already been accomplished in varying degrees by some of those companies who have recently established merchandising programs. In my opinion, traffic department participation is a very necessary item in the successful operation of such plans. There are today many Independent companies as well as Bell associated companies which have had tremendous sales results by making use of the traffic personnel and their availability to natural channels of communication which provide them with opportunities for sales.

These natural channels of communication that I refer to are multipartite and the effectiveness with which they can be used is determined in a large sense by the amount of commercial information that is available to the traffic operators.

One of these is the information board itself. An information operator in her day-to-day assignment has a wonderful opportunity to observe business and residential listing deficiencies. Recurring "NF" or "No Phone" reports as given by a traffic information operator makes her quickly aware of these deficiencies. If the commercial department will provide an easy method of reporting these situations and a satisfactory procedure of forwarding results to the individual operator, she will provide you with a veritable gold mine of high profit revenue by being alert to these sales possibilities.

To the best of my information, there are few sales areas in our business where the ratio of sales to net profit are as good as in extra listings in the directory. Your information girls will provide you with plenty of sales prospects for this type of service as well as suggestions for display advertisements, alternate call listings, after hour listings and even main telephone service.

Our long distance operators, too, can be counted upon to provide the commercial department with more sales tips. These might concern inadequate local exchange trunks, additional private exchange equipment and stations, as well as listing requirements. These contacts like those of information are brought about by her close contact with our calling customers in thousands of calls each day.

This sales potential is not mere theory. In the case of our own Lincoln company's experience, of 5,200 requests for sales assistance turned in by our employes through the first nine months of our merchandising program, this year, almost 1,900 or more than 35 per cent of the requests were sent in by employes from our traffic department. These 5,200 requests resulted in an annual gross sales of $62,000 of which $14,000 was a result of the efforts of our traffic girls. This 23 per cent of total annual revenue that was generated by traffic might perhaps pall when compared to the 47 per cent as developed by the plant forces.

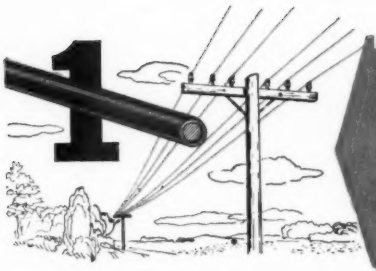
But, I repeat that the nature of sales generated by the traffic department is such as to indicate a rather high net earnings from their efforts. Perhaps there are many of you who could recite similar results or even better than those I have just mentioned, but our merchandising program is relatively new and I do not feel that we have reached the full potential that will be ours in the near future. The very nature by which these requests originate in the traffic department results in numerous duplicate requests for sales assistance yet in spite of the fact, we still have an average annual revenue of $7.20 for each traffic sales request. In this way the traffic department substantially assists in a better commercial sales performance.

Before the optimum can be realized in this traffic effort, it will be necessary for the commercial department to communicate more effectively with the individual operator to assist her in being able to use the information that is

(Please turn to page 72)

6 Sure Ways to improve performance and cut operating costs with Copperweld

TRADE MARK

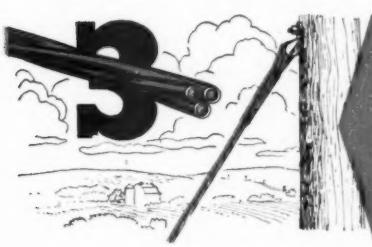


Build with Copperweld LINE WIRE

For short subscriber loops and secondary toll lines use .080"-30 E.H.S.—and for toll lines and long subscriber loops install .104"-40 H.S. Copperweld* "talks better" than any other high-strength conductor. It's strong, non-rusting, light in weight. Economical and easy to string, it's unequaled for long-life, long-span construction.

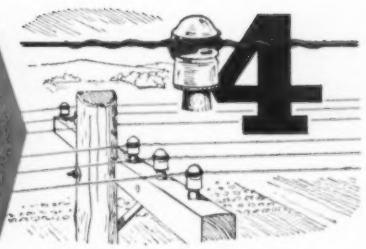
Build with Copperweld DROP WIRE

Not only is Copperweld the strongest drop wire made, but its non-rusting copper covering provides excellent conductivity. No. 18 Copperweld has a breaking strength of 400 pounds for the pair. This greater strength means greater mechanical safety—provides the added stamina to withstand heavy ice and wind loads.



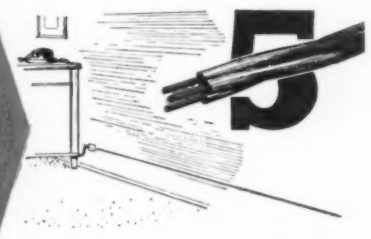
Build with Copperweld GUY STRAND

You can end guy maintenance and replacement costs by installing Copperweld—the strong, non-rusting strand that lasts as long as modern poles. Use 3 No. 8 Copperweld for 6M breaking loads, 3 No. 10 for 4M, and 3 No. 12 for 2.2M. These guys are easy to handle—cost less per year than rustable guys of comparable strengths.



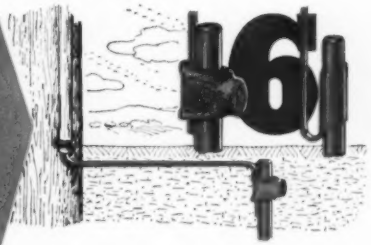
Build with Copperweld GRIP-FLEX TIES

The preformed Copperweld Grip-Flex Tie is strong, non-rusting, simple in design, easy and inexpensive to apply. It reinforces the conductor over the entire length of the tie, prevents fatigue, and assures uniformity of construction. Copperweld Grip-Flex Ties are made for line wire sizes from .080" to .165".



Build with Copperweld INSIDE WIRE

Copperweld Inside Wire is used by the world's leading telephone systems—and for good reasons, too. It has good conductivity, is low in cost, pliable, and has the high strength to withstand repeated flexing and long duct pulls. Copperweld Inside Wire is available in 2, 3 or 4-wire twisted or jacketed construction.



Build with Copperweld GROUND RODS

For permanent grounding protection, you can depend on Copperweld—the only ground rod that's Molten-Welded. The non-rusting copper covering provides high conductivity—the steel core permits easy driving. With Copperweld Ground Rods, you'll have copper-to-copper contacts throughout, thus assuring low resistance.

*Trade Mark

For the BEST in Telephone Products . . .

use Copperweld TRADE MARK

SOLD BY LEADING DISTRIBUTORS

COPPERWELD STEEL COMPANY WIRE AND CABLE DIVISION *Glassport, Pa.*

For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, New York

Now–you can get Reliable

Reliable 2000-series Outdoor Protector

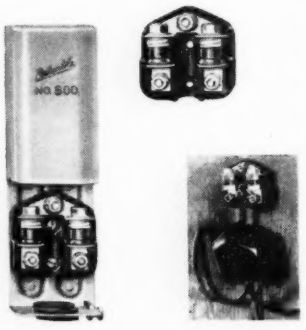
Offers unusually simple, neat installation. May be wired and mounted without removing fuses or brackets. Reversible fuse mount is molded phenolic, with contoured shield that aligns the interior wires, keeping them away from line side of fuse connections.

Neoprene base has entrance-sealing slots. Base is tapered so cover fits insect-tight, weathertight.

Metal parts either bronze, plated bronze, aluminum, or stainless steel. Aluminum cover and mounting bracket. UL-appr. 7-amp. ceramic fuses and Reliable No. P-495 self-cleaning, sawtooth discharge blocks.

Cat. No.	Type No.	Fuse No.	Shpg. Wt. Lbs. Per C
S-8290	2000	55-L	110
S-8292	2000-C	55-L	110
S-8294	2000-H	77-L	110
S-8296	2000-F	27-L	110

Reliable Fuseless Station Protectors



Three models available: No. 700, for indoor mounting; No. 800 (in metal case), and No. 801 (in Neoprene case), for outdoor mounting.

These protectors use the No. 504 Protector Units which provide carbon to carbon air gap protection, and a secondary grounding element for high currents. The Protector Unit grounds permanently only when necessary. Types 700 and 800 listed by Underwriters' Laboratories and meet all requirements of the 1953 National Electric Code (Article 800).

Fuseless Station Protectors

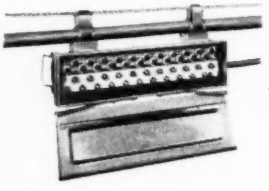
Cat. No.	Type No.	Std. Pkg.	Shpg. Wt. Lbs. Per C
S-2237	*700	2	27
S-2236	*800	2	40
S-2241	801	2	31
S-2238	504 Protector Unit	10	2½

Fuseless Cable Protectors

Cat. No.	Type No.	Std. Pkg.	Shpg. Wt. Lbs. Per C
S-2243	700A	2	27
S-2240	800A	2	40
S-2244	801A	2	31
S-7541	506 Protector Unit	10	2½

*Approved and listed by Underwriters' Laboratories.

Reliable Type ST Strand Cable Terminals –



For strand, pole, and wall mounting, with reinforced cast resin binding post terminal blocks. Available with 24 gauge double paper insulated lead sheathed cable stubs, or 24 gauge plastic sheathed plastic insulated cable stubs. Suitable for gas pressure, and are made in three categories: Unprotected; Protected; Multiple Fuseless Station Protected.

The 6-, 11- and 16-pair terminals are equipped with cable stub entrance holes in each end for reversal of stubs. All housings have individual drop wire entrance grommets which keep the terminal weathertight and all metallic parts are aluminum or stainless steel.

The 26-pair terminal housing and stub are reversible without changing the terminal block. Bracket furnished for pole or wall mounting on 26-pair only. Protection is not lost when terminal cover is opened. For Cable Protection use No. 506 Protector Units; for Station Protection use No. 504 Protector Units.

Unprotected Cable Terminals

Cat. No.	Type No.	Capacity (Pairs)	Protector Unit No.	Std. Stub Length	Type of Stub	Shpg. Wt. Lbs. Ea.
S-8318	ST6	6	Unprotected	4½'	Lead (DPI)	6
S-8319	ST11	11	"	4½'	"	6½
S-8320	ST16	16	"	4½'	"	8
S-8321	*ST26	26	"	7'	"	10½
S-8330	ST6A	6	"	4½'	Plastic (PE)	6
S-7525	ST11A	11	"	4½'	"	6½
S-7526	ST16A	16	"	4½'	"	8
S-7544	*ST26A	26	"	7'	"	10½

Protected Cable Terminals

Cat. No.	Type No.	Capacity (Pairs)	Protector Unit No.	Std. Stub Length	Type of Stub	Shpg. Wt. Lbs. Ea.
S-8322	ST6P	6	506	4½'	Lead (DPI)	7
S-8323	ST11P	11	506	4½'	"	8
S-8324	ST16P	16	506	4½'	"	10
S-8325	*ST26P	26	506	7'	"	13
S-8326	ST6PS	6	504	4½'	"	7
S-8327	ST11PS	11	504	4½'	"	8
S-8328	ST16PS	16	504	4½'	"	10
S-8329	*ST26PS	26	504	7'	"	13
S-8331	ST6PA	6	506	4½'	Plastic (PE)	7
S-7534	ST11PA	11	506	4½'	"	8
S-7535	ST16PA	16	506	4½'	"	10
S-7537	*ST26PA	26	506	7'	"	13
S-8332	ST6PSA	6	504	4½'	"	7
S-8333	ST11PSA	11	504	4½'	"	8
S-8334	ST16PSA	16	504	4½'	"	10
S-8335	*ST26PSA	26	504	7'	"	13

*For Pole and Wall Mounting Only.

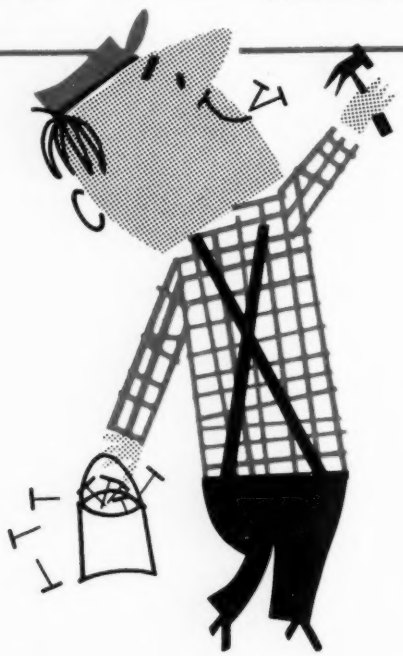
Lead Cable Stubs: (DPI) Double Paper Insulated Lead Sheath Cable. 24 gauge is standard.

(PE) denotes 24 gauge Polyethylene plastic stub. Polyvinyl chloride stubs available on request.

Cook Hy-Cap Single Circuit Power Cross Protector

Furnishes protection against contact between telephone and power lines and against lightning. Consists of alloy cover, 3 carbon electrodes on a porcelain base, 3 copper wire leads, and a bracket for easy mounting.

Cat. No.	Type No.	Description	Wt. Lbs.
S-8542	501-40	Single Pair	1¼



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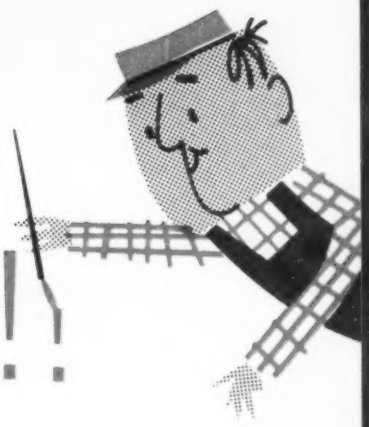
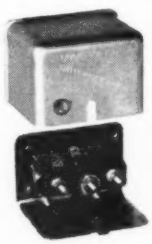
these Cook and leaders at Automatic!!



Cook "Interceptor" Fuseless Protector



The Cook Minigap, is a fuseless subscriber protector for indoor or outdoor mounting. It is ideal for open wire pole or cross arm installation ahead of the subscriber dropwire where protection is desirable for joint occupancy with power circuits.

The Interceptor is designed to meet the Underwriter's "Standard for Protectors for Communication Circuits." Consequently, both Minigap arresters will pass, simultaneously, a current of 30 amperes for 15 minutes without destruction.

For indoor mounting the Interceptor consists of a moulded Bakelite base with heavy everdur terminal and ground studs and two #41-350 Minigap arresters.

For outdoor mounting the Interceptor is enclosed in an all metal, corrosion resistant, weatherproof housing with grommetted bracket.

The self-cleaning, sealed Minigaps, #41-350, are screw mounted in Bakelite with ground stud and bussed circuits inserts moulded.

Minigaps are keyed to fit the individual protector air gap or voltage breakdown requirements so as to prevent incorrect installation with subsequent excessive maintenance costs.

Each arrester consists of two carbons with a thermoplastic acetate dielectric providing an air gap, which in the event of heavy or prolonged discharges will allow contact between the discharge blocks.

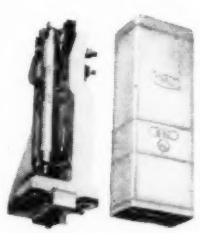
Cat. No.	Type No.	Description	Wt. Per 100 lbs.
S-2231	501-150	Outdoor	56
S-2232	501-165	Indoor	30
S-2233	41-350	Minigap	2½

Cook Drop Wire Connector

This two wire connector is especially developed for better insulation, to simplify installation and testing, occupy less space and improve the connecting methods of subscriber drops to open wire. The wire entrances are sealed with a Neoprene gasket for long life.

Cat. No.	Type No.	Description	Wt. Per 100 Lbs.
S-3799	563-30	Drop Wire Connector	65

Cook O-9u Sub-Station Protector



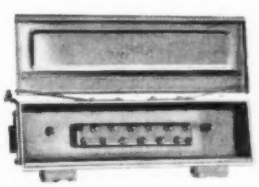
The body is a single piece of heavy, white-glazed, low-absorbent porcelain. Fuse and arrester clips are of phosphor bronze. Equipped with two Tru-Gap dischargers and two A-9u 7-ampere lavite fuses.

Cat. No.	Type	Description	Wt. Lbs.
S-8600	O-9u	With A-9u Lavite Fuses 7 amp.	1¾

Type 07, 012, and 052 Protectors

Cat. No.	Type	Description	Wt. Lbs.
S-2201	07	With A-7 Wood fuses 5 amp.	1¾
S-8532	07	With A-7 Wood fuses 7 amp.	1¾
S-2206	012	With A-12 Lavite fuses 5 amp.	1½
S-2208	052	With A-52 Fibre fuse 7 amp.	2

Reliable Wire Terminals – Protected and Unprotected



Terminates plastic cable and joins drop or bridle wire and Rural Distribution Wire.

Protected terminals have molded resin-filled binding post block, and weathertight aluminum housing and protector units, just as in the Strand Terminal line. Terminals with No. 506 protector units provide for lightning discharges, power fault current — can be used as protected distribution terminals.

Cat. No.	Type No.	Capacity (Pairs)	Type Of Block	Protector Unit No.	Shpg. Wt. Lbs. Each
S-8336	*5503	5	Porcelain	None	2
S-8337	†5504	6	Resin filled	504	5
S-8338	†5505	6	Resin filled	None	4
S-8339	†5506	6	Resin filled	506	5
S-8340	*5507	6	Porcelain	None	2
S-8342	†5509	6	Porcelain	None	5
S-8344	†5524	11	Resin filled	504	6
S-8345	†5525	11	Resin filled	None	5
S-8346	†5526	11	Resin filled	506	6
S-8347	†5544	16	Resin filled	504	8
S-8350	†5545	16	Resin filled	None	6
S-8352	†5546	16	Resin filled	506	8

*Formed aluminum housing for pole or cross arm mounting.
†Cast aluminum housing for strand, pole or wall mounting.

WIRE TERMINAL BLOCKS

Cat. No.	Type No.	Capacity (Pairs)	Type Of Block	Protector Unit No.	Shpg. Wt. Lbs. Each
S-8210	5514	6	Resin filled	504	2
S-8211	5515	6	Resin filled	None	1
S-8212	5516	6	Resin filled	506	2
S-8213	5517	6	Porcelain	None	1
S-8214	5554	11	Resin filled	504	4
S-8215	5555	11	Resin filled	None	2
S-8216	5556	11	Resin filled	506	4
S-8217	5564	16	Resin filled	504	6
S-8218	5565	16	Resin filled	None	3
S-8219	5566	16	Resin filled	506	6

Reliable Wire Terminal

Used for taking drops off Urban, Suburban, and Rural Distribution Wire. Molded plastic.

Cat. No.	Type No.	Cap. Pairs	Shpg. Wt. Lbs., Ea.
S-3796	5500	1	½

Cook Type 7 High Potential

Protects drop wires and cables terminating in unprotected cable terminals where constant static drain is required. Five-pair capacity.

Non-corrosive metal hood. Everdur studs, and galvanized mounting bracket. Phosphor bronze spring clips accommodate non-grounding Tru-Gap Dischargers.

Cat. No.	Type No.	Description	Wt. Lbs.
S-2193	7	Complete with Dischargers	3

In fact, we have a full line of protective equipment made by these famous manufacturers—all the products you see here and many others. You can depend on Cook and Reliable quality. It means lower maintenance costs and a healthier-looking profit-and-loss statement when you're figuring up the books.
You can order proved-economical Cook and Reliable equipment by calling your nearest Automatic representative or your A. E. Sales Corporation warehouse.

AUTOMATIC'S 5 FRIENDLY WAREHOUSES:

George Ferguson, Mgr. 1033 W. Van Buren St. Chicago 7, Illinois HAymarket 1-4300	"Michie" Hester, Mgr. 2915 Moore St. Richmond 21, Va. Tel. 6-9280	Ed. J. Chok, Mgr. 2360 N. W. Quimby St. Portland 10, Oregon CApitol 3-7244	Fran Batcher, Mgr. 158 Corliss Avenue Johnson City, N. Y. Binghamton 7-8507	Gene Martin, Mgr. 2021 Main St. Kansas City 8, Mo. HArrison 1-4720

AUTOMATIC ELECTRIC

GENERAL SYSTEM

ORIGINATORS OF THE DIAL TELEPHONE

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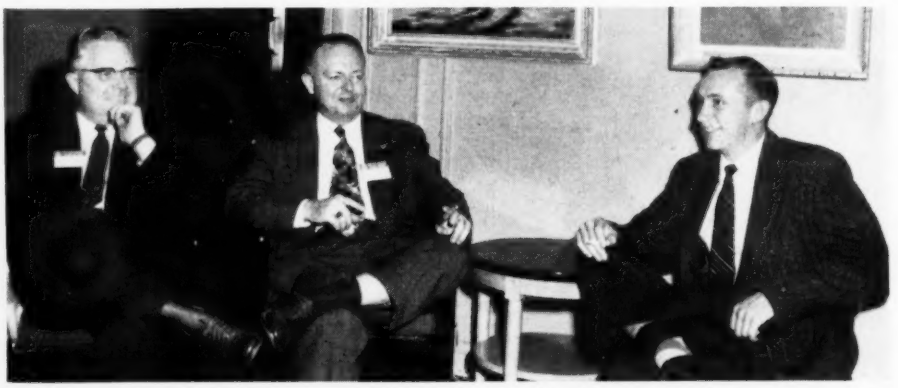
made available to her. In general, it seems that the most effective method is to have more merchandising conferences with our traffic folks and to provide them with good news stories in the company magazines and through company bulletins. Perhaps through competitive efforts between groups, this could be developed even further.

The second general area where the traffic department can assist the commercial people is in that of public relations. I trust that we are in agreement with the basic premise that good public relations are not possible without good service, but that good service of itself does not necessarily insure good public relations. Although this problem is primarily the responsibility of the commercial department, we all know that it is generated in thousands of little ways by perhaps thousands of people or at least by thousands of personal contacts.

Much has been written in trade magazines and house organs about the great public relation potential in the plant employe going about his daily assignment installing telephones and working with our telephone users. No one can take issue with this reasoning and, from experience, I could, as I am sure each of you could if time permitted, detail situations where the telephone companies public relations have either been enhanced or injured by the actions of these employes while on duty.

Likewise, the tremendous volume of daily contacts that our traffic force, both local and long distance, have with our telephone users is perhaps just as critical as that of the plant man. Certainly they are more numerous. Over a period of years the "Tone of Service" that has been developed by the telephone operator has been an accepted standard among businessmen and housewives of good service and the reflection of willingness to serve. The traffic operator is accepted by the public as a needed person, one that they, the public, can depend upon in times of emergency or indecision.

Left to right: Lucille Russell of TELEPHONY, G. L. Best of New York City, Vivian Ryden and Teri Smith, both of TELEPHONY.



Left to right: W. T. Autry of Grinnell, Ia.; Keith Vogt of St. Paul, Minn., and James Wright of Alexandria, Minn.

L. H. Meyer (left) of Lafayette and Rodney M. Coggin of Warsaw, Va.

This has not been a happenstance, but has been brought about through the diligent efforts of our predecessors in the industry who were inspired by a deep sense of dedication to service. This "Tone of Service" has continued throughout the years but the problems of maintaining the same may not be as easy in the future as it has been in the past.

Day by day we are introducing to our customers a more efficient, faster type of telephone service than the pioneers of the industry ever dreamed possible. In order to accomplish this, it has been necessary to inject the mechanical approach to telephone service to a point that in many of our exchanges most of the personal contacts will have vanished from the telephone users experience. If the mechanical approach to telephone service continues to grow it seems logical to conclude that tomorrow's telephone operator will bear more and more responsibility towards maintaining good public relations with our telephone subscribers.

I presume that within this group there is a considerable amount of experience in connection with the commercial problems prior to and after the advent of Direct Distance Dialing (DDD) or CAMA operation. I am sure that many of you are familiar with some of commercial-traffic problems that have arisen. The advent of DDD has captured the imagination of all telephone employes and telephone users, perhaps as completely as anything that has happened in the history of telephony. In our own company situation, we are preparing our first conversion to CAMA and DDD with an installation of a BD type Strowger automatic toll ticketing system.

During the next five or six years, it is our intention to convert to 100 per cent distance dialing. This will probably shrink our 20 toll centers into as many as three or five. It requires very little stretch of the imagination to project some of the commercial problems that will no doubt arise as a result of this program. It seems obvious to me that our traffic operator of tomorrow may perhaps be the only telephone personality readily available

(Please turn to page 129)

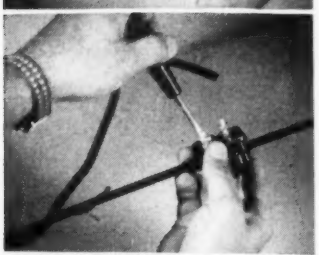
TWO GREAT NEW PRODUCTS..

SUPERIOR TERMINAL

SUPERIOR Parallel LINE WIRE

Easy Installation of
SUPERIOR PLWT-1 TERMINAL

Skin line wire insulation.



Fix terminal in place on line wire.

Connect drop wire.

Snap on neoprene terminal cover.

These two great *new* products of the Superior Cable Corporation are closely matched for long life, ease of installation and economy.

The new SUPERIOR PLWT-1 TERMINAL is of an exclusive design . . . is weatherproof and is self-supporting on the line wire. Provides positive and continuous contact of conductors at the point of take-off. Simplifies drop line connections.

New SUPERIOR Parallel Line Wire is completely insulated with high grade polyethylene . . . available with one pair of 12 or 14 gauge copperweld or .083 inch galvanized special steel wire conductors.

The outstanding self-supporting characteristics and low attenuation of SUPERIOR Parallel Line Wire make possible long drop runs to serve subscribers distant from the main pole line at minimum cost. Use in place of open wire for greater economy and efficiency.

For detailed specifications, write

SUPERIOR CABLE

SUPERIOR CABLE CORPORATION
Hickory, North Carolina

Living Up to Your Advertising Program

By CARL D. BROREIN JR.
Peninsular Telephone Co., Tampa, Fla.

(A Commercial Conference Address)

THERE are many types of advertising that operating telephone companies can and do engage in. Because this field is almost without bounds, particularly when highly specialized phases are considered, it will, I believe, be desirable to limit our discussion to two of the more basic approaches that can be made to the general public.. One is to advertise the availability of service and to sell your subscribers or potential subscribers on the desirability of contracting for this service. The other is to sell the company and those things for which it stands, not only to the subscribers but to the general public in the territory in which the company operates.

Of the two basic forms of advertising that we are considering, both should be approached in a positive and "live" manner and should briefly and simply convey to those people the program is attempting to reach, the positive strides that the company has made in improving its service and, where appropriate, emphasizing the availability of additional service, such as supplementary equipment and many other revenue producers which the company may be in a position to supply.

In the matter of additional service, there is nothing that will back-fire quicker than to encourage your subscribers to apply for service such as extensions or colored instruments and then be unable to provide prompt installation. Also, for example, if you have a number of held orders from people who have been waiting for several weeks, and in some cases months, for basic service it does not appear wise, when they have no service at all, to publicize a program of selling supplemental service while they continue to wait for just a telephone.

Another consideration that would fall in this same field is the ability of the repair department to give prompt attention to and clear trouble reports with a minium of inconvenience to the subscriber. In many cases, this means clearing trouble reports, particularly where interruption of service is involved, at night time or on weekends just as promptly as during the normal working day.

If a company is in a position so that it has facilities available that will enable it to conduct an extensive sales campaign, there is considerably more involved than just availability of equipment and the buying of advertising space. This is particularly true of the medium and larger size companies and to a varying degree will hold true for any company.

When top management decides to embark upon such a program there will have been considerable thought and study on the part of this management as to the company's ability to provide the service, and equally important is the coordination of the various departments that will be involved; such as advertising, when it is a separate department, as they will be the ones that will bring public attention to the program; the commercial department, for they have direct contact with the subscriber and will probably be the group who does the basic survey work to determine the scope of the potential market; the engineering department, for they must plan the basic expansion resulting from such a sales program; the plant department, for they must not only install but maintain these additional pieces of equipment; the purchasing department, for they must have arranged for a continuous and steady flow of supplies—in fact the whole organization becomes involved if the company is to uphold its end of a sales program by providing its facilities as advertised.

Unless the organization is in a position to provide promptness of installation and adequate maintenance it might be better to direct your efforts and dollars to other phases of the public relations program.

If selling supplementary service is not contemplated, there is still a big job to be done. Selling the company, and those good things for which it stands, to your subscribers, in the long-run probably requires considerably more effort and energy than does the selling of a particular service. In fact the word "sell' should not even be used in this connection. The keystone of institutional good-will and respect is courtesy.

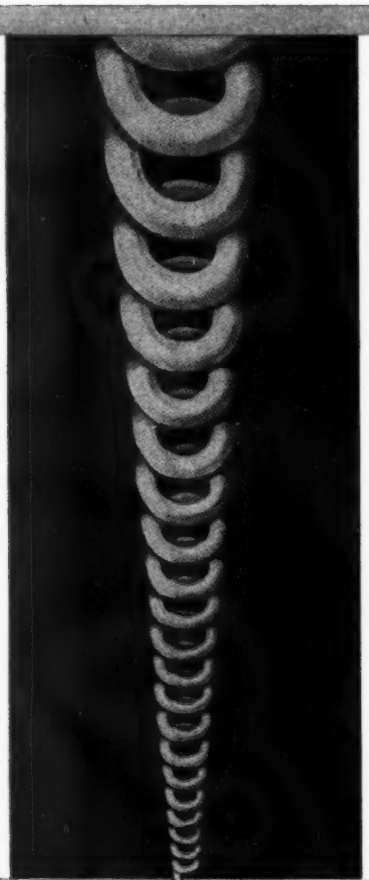
In addition, this phase requires that the conduct of the company and its employes in regard to their community activities be above reproach. As representatives of the company, they should create an atmosphere whereby the company is readily identified with the various business activities and civic affairs of the community. They should prove through their everyday actions

(Please turn to page 133)

XUM

RETRACTILE CORD

BY GENERAL INSULATED WIRE WORKS, INC.*



A new development backed by General Insulated's unmatched experience and know-how in the manufacture of telephone handset tinsel cordage:

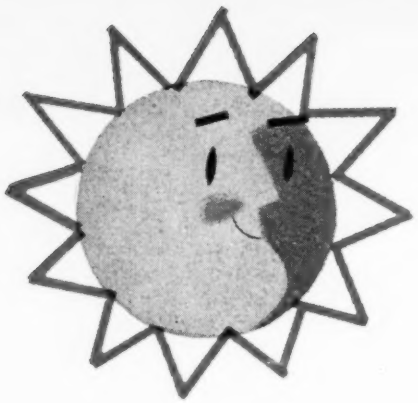
***Retractile Cord* with tough, durable, non-staining Neoprene jacket for use with black telephone sets. Available with or without integral moldings and terminations.**

Straight line cords and assemblies are available in Neoprene, colored rubber or plastic.

GENERAL INSULATED WIRE WORKS, INC.

Providence 5, Rhode Island

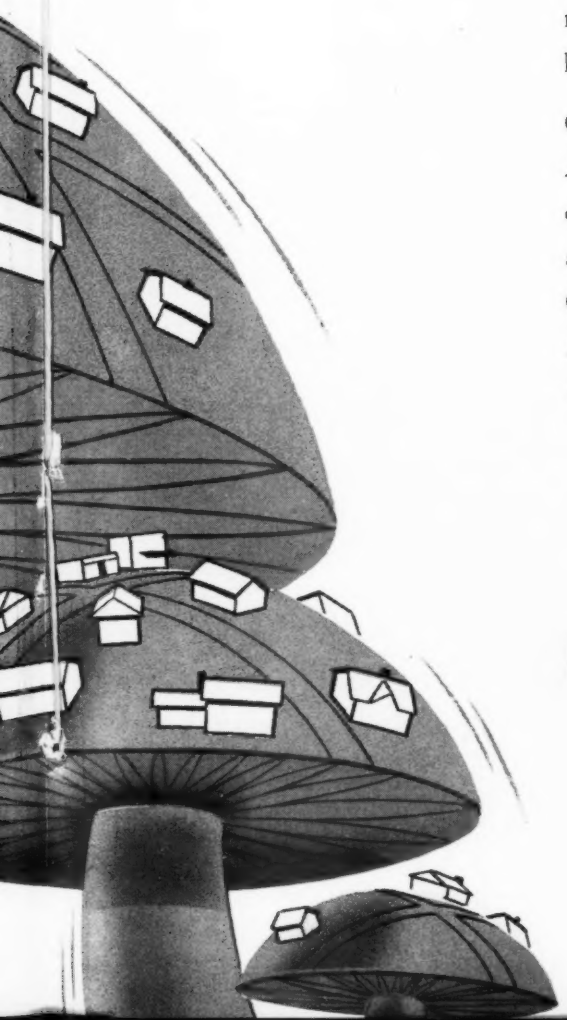
*Licensed to manufacture under existing patents.



COMMUNITY MUSHROOM

Strowger Automatic dial switching equipment grows <u>with</u> you!

OMING?



EACH STROWGER AUTOMATIC switch, each shelf, each frame is a *unit*—made so you can add more later—*easily*. For moderate growth, you just jack in a switch or two on the extra banks provided with your equipment. If larger growth occurs, you add a shelf, complete with pre-wired banks. And for heavy growth, you add a frame with as many shelves of switches as you need. There's no capacity limit to Strowger expansion.

Convince yourself. Talk to the owner of a Strowger Automatic exchange. Ask him about Strowger's economical expansion—and about its high dependability, low maintenance, and time-proved adaptability, too. Then get in touch with us. Our engineers will be pleased as punch to work with you!
Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or call HAymarket 1-4300.*

AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

GENERAL SYSTEM INDEPENDENT

Report of USITA Traffic Committee

By H. J. KLEINHAMMER
Chairman

ON BEHALF of the USITA Traffic Committee I am pleased to have this opportunity to briefly recall with you a few of the more significant milestones in last year's parade of progress.

Our industry is making rapid strides toward the goal of nationwide customer dialing. In 1955, over 208 million messages were dialed by customers into the nationwide network. These messages represented about 9 per cent of the total toll messages and 15 per cent of the total *dialable* messages. This year it is estimated that 19 per cent of the dialable toll messages will be dialed by customers.

The number of customer-dialed messages in 1955 nearly doubled the number in 1954. So I think we can agree that this rate of progress demands the devotion of our long-range and short-range plans to the orderly development of each step related to our common goal.

Traffic Operating Practices are being streamlined to conform more closely to automatic operation. Not only will the new methods tend to reduce operating cost, but also they will prepare customers for dialing their own calls and initiating their own subsequent attempts in the event that their call is not completed because of "no answer" or "busy."

During the past year significant changes have been made in the Traffic Operating Practices, Sections A and B having been reissued in their entirety. Recent changes provide for suggesting that the calling party place a new call later at his convenience when the called station is busy or out of order, or no answer is received. In such cases the original ticket is cancelled and a new one written each time the customer attempts his call.

The operator work time is reduced by approximately two units on each subsequent attempt handled in this manner. Of course, the percent of completion appears to be lower because of the additional tickets which are written, but experience has shown that, in reality, a greater number of messages are actually completed, with less work time, by the new method. (I think it interesting that one of our Independent companies on the West Coast claims the honor of having originated this plan.)

Another major change is the new "leave word" practice which practically eliminates the need for "TX" positions. In fact, many companies have completely eliminated their TX positions and are filing delayed tickets at a table, thus gaining valuable positional equipment.

Of course, we are all continuously encouraging customers to place their calls by number rather than address name.

Incidentally, in adopting the new operating practices, most companies find it necessary to make new supplementary peg counts and adjust their force requirements.

Now, let us talk briefly about toll compensation studies and settlements. The traffic cost studies, which serve as a basis for negotiating revisions in settlements, are becoming increasingly important due to the sizable sums involved. These settlements to Independent companies for expenses incurred in handling business interchanged with Bell System companies now amount to 150 million dollars annually. Proposals developed this year should have the effect of improving service as well as compensating the individual company on the basis of facilities and service rendered.

For example, the "A" commission schedule provides three different amounts of payment based on the type of equipment employed, with terminal-per-station dial receiving a higher compensation than terminal-per-line dial or manual local equipment.

In regard to line haul schedules, settlements will take into consideration the number of circuits provided to handle a given message volume. Thus, as we provide more circuits in a group carrying interchanged traffic, our compensation will be increased—an incentive toward meeting the nationwide service objectives.

While all these things seem to be a great step in the right direction, we must not lose sight of our individual responsibility. In order to take advantage of the provisions of these new proposals, particularly those concerning line haul schedules, it will be desirable to maintain certain records which some companies may not now keep, such as message load volume by circuit groups, etc. Further, we will have the option of accepting settlements based on national averages, or conducting special studies of our own.

In connection with operating commissions or "B" schedules, studies this year have again revealed the urgent need for Independent companies to adopt standard operating procedures and techniques particularly with regard to (1) correct ticket preparation, (2) proper routing, (3) correct use of toll circuits, (4) emphasizing "Calls filed by number," and (5) provision of adequate positions and circuits. There are other points we should watch which will add strength to our position. Your USITA Traffic Committee shall be happy to lend its assistance in estab-

(Please turn to page 133)

Job Interest Stimulation

By MRS. WINNIE B. BURNETT
Southwestern States Telephone Co.
Brownwood, Tex.

(Traffic Conference Address)

JOB INTEREST must be stimulated in order to produce good technical job performance. To insure this stimulation, much planning and programming is required.

In our constant effort to give better service to our subscribers and to keep up with the rapid technological developments, there are frequent changes in our operating methods and procedures. These increasingly frequent changes should be communicated to the operating forces in such a manner that, while they must be easily understood, they will present an interesting challenge.

Strange as it may seem one of the basic problems of the telephone industry is that of effective communication.

In order to improve the technique of switchboard operating, and to stimulate job interest, our company, The Southwestern States Telephone Co., uses a series of instructive operating programs which deal with pertinent problems or with technical changes. We call these "Traffic Operating Programs" —another company may call them "Job Stimulation Programs" — but whatever they are called, they are meant to *tell* something. When new TOP (Traffic Operating Practice) inserts are received, we study them and after careful analysis instructions are written, stating the new procedures in simple terms and when necessary adapting them to company policy. In our company, all programs concerning practice changes are issued by the general office traffic department, and they deal with particular ideas in more detail than the Traffic Operating Practice describes.

We believe that considerable advantage can be derived from such programming; however, there are some basic facts that must be observed. The instructions:

(1) Must be specific and clear.
(2) Should be constantly accessible to all employes.
(3) Applicable to situations and equipment.
(4) Clearly explained and, when possible, demonstrated.
(5) Understood, accepted and followed by all employes.

It is of utmost importance that we realize the necessity of a mutuality of interest between management and employe, else maintaining job interest in programs becomes an almost impossible chore. Management and employe have much more in common than they have in conflict, so by working together as a team, thereby giving better service to the customers, both can have more of what they are striving for. But bringing about that type of understanding is managements' responsibility and it takes an *effective* two-way system of communications. That is, *transmission* and *reception* of instructions, ideas, policies, etc.

Although the communication of these ideas, in the smaller companies should be relatively simple in comparison to larger companies, it is more frequently the smaller one that falls down on the job of keeping instructions current. Perhaps because formerly the situation was one where a day-to-day face-to-face relationship was possible, the management has failed to realize that with an increasing number of employes and more technological operation, the system of communicating instructions must be formalized.

Probably one of the most common pitfalls of poor programming is the fact that management's own thinking is fuzzy and clouded regarding what is wanted and needed. Remember that a group of employes and supervisors working together enthusiastically for the same purpose is no accident. It doesn't just happen! It is the result of management spelling out clearly its objectives and policies, communicating them effectively and then *selling* the employes on their *"worthwhileness."*

Another pitfall lies in the expressions we use in our instructions. All too often we fall into the lazy habit of using general expressions—the tried and *trite* kind—such as "The customer is always right," "Courtesy, Accuracy and Speed," etc. These slogans, while everlastingly good, can become meaningless and foggy with constant repetition, and certainly fail to stimulate a new enthusiasm in the job. It is a wise person who can choose words which illuminate the meaning, thus achieving the desired results; for the words stimulate the response.

The third failure is in overlooking the fact that actions speak louder than words, that is, facial expressions, voice, poise and general attitude. It must be remembered that while the management may fail to evaluate the employe, the employe never fails to evaluate management. We have learned the hard way that the American worker will do more and better work under *leadership* than he will under *drivership.* Never forget that *leading* is *doing* what you want your followers to do.

Another common weakness is the lack of careful thought given to the selection of supervisory personnel. Since job stimulation and training programs are usually given the employe by her immediate supervisor, much thought and careful training should be given to the people who are selected to fill such positions. The human factor in telephony is often overlooked. We have detailed training programs and on the job in-

dividual instructions for the use of the expensive and complicated equipment; yet we are often guilty of putting people in charge of others without proper information about the most expensive and complicated piece of equipment used in rendering telephone service—the human mechanism.

The fifth error is the failure to use well-known methods to put across effective and stimulating instructions and ideas. These must be communicated from the *general office* to the *division (or district)*—to the *chief operator*—to the *supervisory force*—to the *operating force* in such a manner that uniform understanding is achieved without loss of the *interest* value. Go through the proper lines of organization, too. Don't skip around—if you are a traffic superintendent, don't by-pass the division (or district) office to reach the chief operator; or if you're the division manager, *do* go to the chief operator—*not* to the service assistant. And this takes purposeful planning and adherence to be effective.

Some of these methods are:

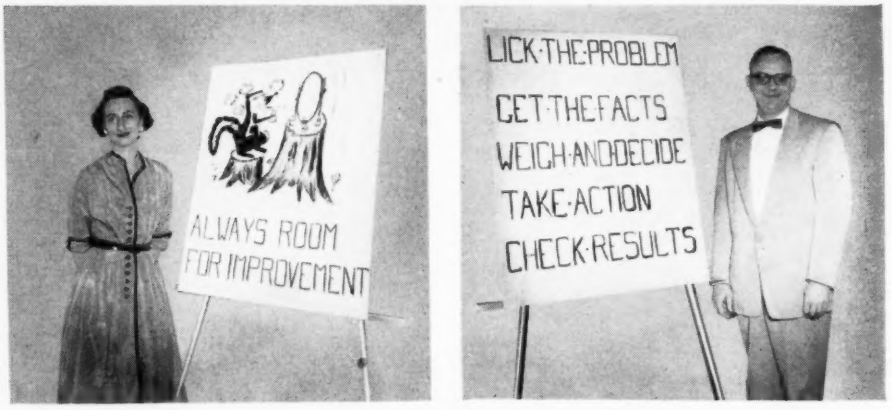
(1) Written programs and instructions.
(2) Day-to-day *effective* supervision.
(3) Frequent interviews and counselling.
(4) Spaced observations and discussions.
(5) Bulletin boards, posters and program cards.
(6) Employe handbooks.
(7) Company progress reports.
(8) House organs (company magazines).
(9) Suggestion systems.
(10) Meetings.

Now for a brief discussion of these ten steps.

(1) We have already discussed written programs and instructions, so let's go to step 2.

(2) Day-to-day effective supervision means the face-to-face supervision of the people who are in personal contact with the operators, mainly the service assistants and chief operators. It is of primary importance that these people take an active interest in their work and have a personal pride in the achievement of company objectives before they can stimulate and maintain job interest among the employes under their immediate supervision. And above all they must give each employe fair, considerate and impartial treatment and supervision.

(3) The chief operator should interview and counsel with her employes on frequent occasions. This simply means being able to *talk* effectively and *listen* sympathetically. Since most chief operators have to do a lot of instructive talking they may find it difficult to develop the art of skillful listening and diplomatic questioning. But this art can be acquired with diligent practice



Mrs. Phyllis Ziegler of Marion, O., and N. R. Weston of Portsmouth, O., who presented a skit at the USITA Traffic Conference demonstrating the correct method of handling employe interviews and dealing with employe complaints in order to build and maintain good employe relations.

—and a basic understanding that human beings are created equal. Among the many important things to *do* when interviewing or counselling, the most necessary one is to *gain* the confidence of the person—*make a friend.*

(4) The next step, observations and discussions, is a necessity in the training and development of operators. These observations, taken at spaced intervals by the service assistant or chief operator, will show the need of additional individual operator instructions and review. It is most important that the observer's actions be based upon a thorough knowledge of operating practices. This insures helpful suggestions in the maximum use of completion opportunities with a minimum of equipment and operator time. These observations offer a wonderful way to increase the operators personal appreciation of the quality of service being given and gives first hand knowledge of need for individual improvement. It also represents to the entire operating force a genuine interest on the part of management in the overall program of improved service.

(5) The next steps, that is, bulletin board notices, posters, program cards, etc., deal with tangible things and so are the simplest to adopt. In our company we use bulletins and posters to good advantage. We find, too, that greater interest is shown if we ask the operating force to submit ideas in accordance with regular operating programs. . . . Another company may use program cards. Usually such cards are displayed on the switchboard in conjunction with daily programs stressing a certain operating weakness. These cards are attention getters and serve to keep interest stimulated on certain techniques or items.

(6) Employe handbooks giving company history highlights is an excellent idea. Most any employe wants to know something about his organization. And each employe must be made to feel that he is an *integral* part of that organization.

Then, pamphlets giving pertinent data on the company benefits, group insurance and hospitalization plans to which they may be entitled are another service of communicating company policies to employes.

(7) Company progress reports are also of great interest to most employes, whether they are published monthly or annually, since it lets them "in on the know."

(8) One of the best *tangible* methods of spreading interesting ideas and information is the house organ, or company magazine. Our company publishes a monthly magazine "The News," and all employes are invited to contribute items, personal or otherwise. We find it an excellent method for getting acquainted with the people and problems of other offices and divisions. Also, statistical information, such as station gains, etc., by divisions, is reported in the "News." It creates quite a challenge, too!

(9) An employe "Suggestion Box" offers an opportunity to suggest ways of improving methods, whether it be the way things are run, or how the floor is cleaned. However, to maintain real interest in this, employe suggestions must not be "brushed off," no matter how trivial. Acknowledgment should be made and consideration given to each suggestion received. As an incentive, we offer a cash bonus for any new suggestion that is adopted as a company practice. And we have had many helpful time and money saving ones adopted, too.

(10) And now we come to one of the best *and* most economical media for communicating managements' ideas to employes in an interesting and stimulating manner—the employe meeting. A carefully planned and skillfully led meeting is a most effective and economical method to achieve unity of purpose and action between management and employes.

I say employe meetings *are* economical. For example, suppose a division manager wants to communicate a change in policy or operating procedure, to nine chief operators. If he talks 20 minutes to each one to explain the change it would take three hours of his time and he still cannot be sure of uniform understanding. Now, if he uses a meeting, with all the chief operators present he can announce the

(Please turn to page 134)

For the best in figures

YOU CAN COUNT ON COMPTOMETER®

One reason our telephone companies give America the world's finest communications is the efficient office equipment that helps them do it, like the Comptometer. Good communications take good calculations, so telephone offices count on Comptometer for quick answers, unfailing accuracy and tireless operation. Comptometer makes smooth work and speeds the great volume of figure work in . . .

Toll Ticket Adding, Payroll, Revenue Accounting, Property & Cost, Supply Accounting, Voucher and Disbursements, Administrative & Financial reports and other calculating operations.

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FELT & TARRANT MFG. CO.
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Gentlemen: Without cost or obligation

- ☐ I want more information about the new Comptometer
- ☐ Please arrange an office demonstration
- ☐ Please arrange a free office trial

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Company_____

City_____ Zone____ State_____

DEPARTMENT OF TECHNOLOGY BUFFALO AND ERIE COUNTY PUBLIC LIBRARY

Report of USITA Accounting Committee

By O. M. WESTRUP
Chairman

FINAL action on several matters with which the Accounting Committee has been concerned for quite some time came during the current year. Some of these matters have to do with the Uniform System of Accounts prescribed by the Federal Communications Commission, while others deal with regulations and administrative procedures coming from the Treasury Department and other governmental agencies.

It speaks well for the efforts of the committee that many of its suggestions have been incorporated in orders and rulings issued from time to time. On the other hand, the FCC, on one important matter, chose to disregard the recommendations of our committee when it requested a change in certain accounting rules.

The FCC rejected a proposed change in accounting for contributions. The decision in this matter came on Mar. 28, 1956, when the commission entered its report and order in docket number 11402 denying the change requested. It will be recalled that the commission, on June 1, 1955, issued a notice of proposed rule making, having been petitioned so to do by both this association (USITA) and the American Telephone & Telegraph Co. Had it been approved, the change would have permitted what is generally felt to be a more realistic basis of accounting for "contributions for charitable or social or community welfare purposes."

It is the committee's contention that such amounts are properly and logically chargeable to operating expense accounts instead of a below-the-line account "Miscellaneous Income Charges," the treatment now prescribed. Although passed by a majority of the commission, the denial order is accompanied by a finely worded dissent written by Commissioner Doerfer. Chairman McConnaughey concurred in the dissent and Commissioner Hyde likewise dissented.

The FCC amended rules with respect to accounting for telephone plant under construction and the timing of retirement entries.

In keeping with the recommendations of the Accounting Committee, the commission on June 20, 1956, entered an order in docket number 11548 which had the effect of liberalizing to some extent certain rules contained in the Uniform System of Accounts for Telephone Companies Class A and Class B. The System of Accounts presently provides that the use of account 100.2 "Telephone Plant under Construction," is not mandatory for construction projects which will be completed ready for service within two months. Such amounts may be charged direct to Telephone Plant in Service.

The revised rules add to this existing exemption a provision that there may also be charged directly to the plant in service accounts the cost of any construction project for which the gross additions to plant are estimated to amount to less than $10,000, irrespective of completion date. It had been suggested by the committee that construction projects costing less than $15,000 be accorded the accounting treatment finally prescribed. Thus, the committee's recommendations differed from the commission's order only in the matter of degree and not in principle.

In the same order the commission approved a rule change with respect to the timing of retirements when property amounting to less than $5,000 is retired under any one project. Such entries may now be deferred until physical removal of the property, or decision to abandon it in place if there is assurance that such action will not be unduly delayed. Heretofore literal compliance with the accounting rules required that such entries be recorded without delay when any plan is cut out of service irrespective of the amount involved. The burdensome effect of such a requirement prompted the Accounting Committee to request a change in accounting rules which would permit, under certain conditions, deferral of retirements until the plan has been physically removed. The rule change is certain to facilitate compliance with the accounting instructions.

The FCC amends rules with respect to accounting for station apparatus, station installations and station wiring.

In its report and order adopted Sept. 19, 1956, in docket number 11769, the FCC prescribed a substantial change in accounting rules for the cost of station apparatus, installation and wiring. While the new rules carry an effective date of Jan. 1, 1958, companies desiring to do so may elect to place them into effect Jan. 1, 1957. In fact, the commission suggests that all Class A and Class B companies endeavor to meet the earlier date in order to obtain as soon as possible the benefits that are expected to follow.

Cradle-to-grave accounting as it has come to be known will apply to station apparatus. Upon its purchase, station apparatus will be charged to Telephone Plant in Service and remain so charged until it is physically junked, sold or otherwise disposed of. It will be depreciable during its entire usable life in contrast with the present practice of depreciating it only while it is actually in service. No provision is made for carrying the cost of such equipment in Materials and Supplies. This should eliminate the necessity for in-and-out reporting and the vast amount of paper work which attends the movement of

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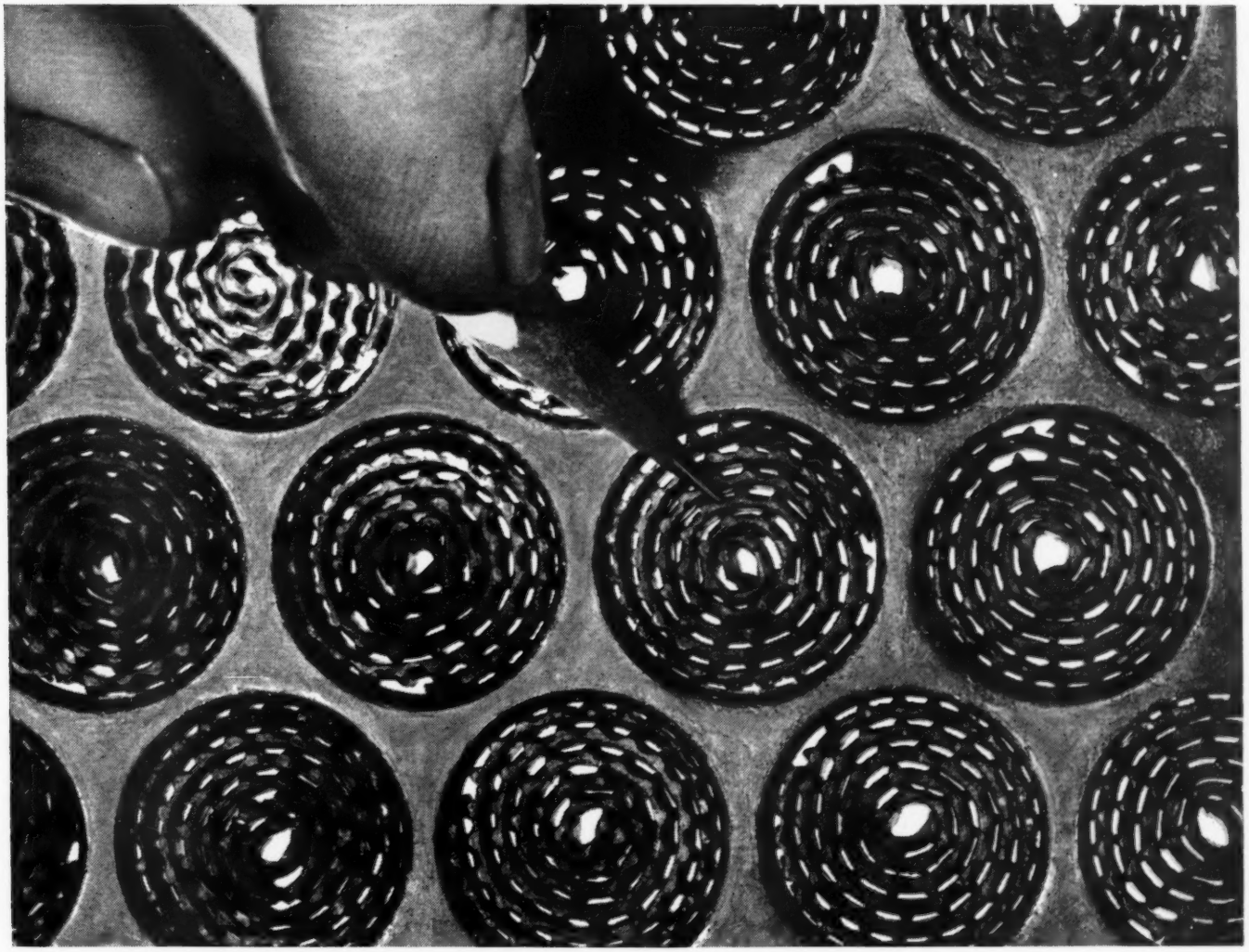
EXIDE-MANCHEX BATTERIES

For telephone applications



Open "windows" for electrolyte insure immediate power

TELEPHONE BATTERY. Models available in capacities from 8 to 960 ampere-hours. Write for Bulletin No. 4852.

The reason Exide-Manchex Batteries outperform other Plante-type batteries is the way they're made. For example, of all batteries on the market today, only the Exide-Manchex gives free access of electrolyte all the way into the center of the positive plate.

You can see this in the picture of the Exide-Manchex positive plate shown above. Heavily corrugated lead strips are rolled into spiral buttons and forced into the positive plate grid. Held up to the light, an Exide-Manchex positive plate shows thousands of tiny openings over its entire surface—openings that pass completely through the plate. Wherever light is, electrolyte goes. Each opening is a tunnel that gives the electrolyte free access to the entire effective surface area of the Exide-Manchex positive plate—hence the power is there when called for.

This unique construction is only one of the many reasons Exide-Manchex Batteries prove so superior in so many applications. When you order batteries for floating service applications, or the equipment that requires such batteries, be sure to specify Exide-Manchex. Write for detailed bulletin. Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 2, Pa.

Exide®

Simplified Station Accounting

By ROBERT D. BUZZARD
Vice President
General Telephone Co. of Pennsylvania

(An Accounting Conference Address)

THE Federal Communications Commission, last Sept. 19, issued a new and important accounting report and order in Docket No. 11769. This order of the commission concerns accounting for station apparatus, station installations and station wiring and applies to Class A and B telephone companies under the jurisdiction of the FCC. As you know, these are companies with operating revenues of more than $100,000 per year. For some time, Class C companies, under the Uniform System of Accounts, have had depreciation accounting for station installations and drop and block wires as well as some of the other features now covered in the new order of the commission.

What I say today applies to Class A and B companies. However, Class C firms should be interested since there is always the possibility of an amendment incorporating the other features of this rule making to the Uniform System of Accounts for Class C Companies. There is also the matter of today's rate-of-growth which might possibly put many Class C Companies into a higher classification more quickly than anticipated. As a matter of fact, if living conditions don't stop improving in this country we're going to run out of humble beginnings for our great men. And, of course, the smaller companies can benefit from the experience that the new accounting changes will bring about.

This new order of the commission makes the most extensive change in telephone accounting procedures since 1937, when the present Uniform System of Accounts was adopted. To make changes in accounting procedure is always cumbersome. And, when you are in the process of the development work, instructing accounting personnel, teaching plant people proper reporting methods, changing established procedures, developing proper depreciation accruals to be applied to station connections and station apparatus accounts, you will wonder who had the courage to call this matter "simplified station accounting." However, it will be worth the work and effort. When completed, I think you'll agree that many hours of work will be saved in the future by both plant and accounting personnel in maintaining adequate records.

There is not enough time today to discuss the great number of procedures necessary to make the new changes effective. The details are simply too many. As a matter of fact, I have a copy of the order—it is 19 single spaced pages in length—more than twice as long as my entire paper. Therefore, I am going to cover three main points which I consider most important in this simplified station accounting. They are: (1) The background and desirability of the changes, (2) highlights of the change and the ultimate objectives, and (3) various methods which may be used in putting the new procedures into operation.

D. B. Corman (left) of London, Ky., and R. P. Sullivan of Johnstown, N. Y.

In 1913 the Interstate Commerce Commission issued its Classification of Accounts for Telephone Companies. Since then, the matter of depreciation accounting for station installations—drop and block wire—and fixed capital life, or "cradle-to-grave" accounting for station apparatus has been discussed from every angle. As you know, block and drop wires and station installations have, in the past, been eliminated from depreciation accounting. This was done primarily because to include them as maintenance expense did not distort the expense accounts. They were short lived, the amounts were small, the retirements allegedly came regularly and at short intervals. However, during the depression years the wiring loss increased tremendously in a period of falling costs.

This had a serious effect on operating expenses and tended to accentuate the effects of the economic depression of net income. Many operating people in the Independent industry suggested that accounting procedures be changed to more nearly reflect the facts. Various state commissions were concerned with this problem. The accounting for station apparatus on an "in and out" basis is burdensome. Furthermore, it does not represent the true capital required for station apparatus equipment. All station apparatus is a proper charge to capital because it is necessary in providing telephone service whether it is actually in service or sitting on a shelf.

This is as true of station equipment as it is of an actual pair of wires in a cable run awaiting assignment to a customer. Certainly the customer cannot be expected to wait for the company to order and receive a telephone from

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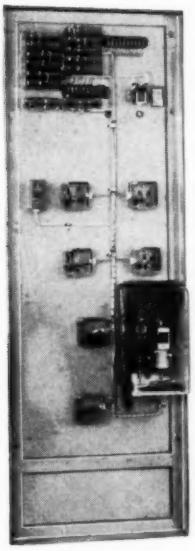

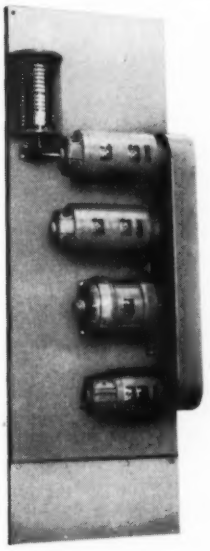

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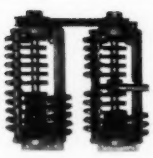

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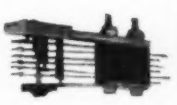

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the factory when he applies for service. The customer wants and expects service immediately upon request. The principle of cradle-to-grave accounting recognizes this fact and has been applied to meter accounts in the electric industry for many years and, in my opinion, is sound accounting.

In 1952, the chief accountant of the Federal Communications Commission, at the request of the NARUC Accounting Committee, suggested revisions in the accounting requirements for station apparatus and drop and block wire. The commission asked for the views of our association and the Bell System companies. Our executive vice president advised the commission that we were receptive to change in the accounting requirements in connection with station movement and wiring gain and loss. The American Telephone & Telegraph Co., on behalf of the Bell System, advised the commission that their problems in this matter were so extensive that they would not recommend a change. Later, the accounting committee of the NARUC and the FCC requested the industry to further study the problem. Specifically, the industry was asked to see if the objectionable parts of the present system could be eliminated and an equitable procedure established for cradle-to-grave accounting for station apparatus and depreciation accounting for drop and block wires and station installations.

The Bell System made extensive studies and our association, on Aug. 15, 1955, established a special committee to consider the problems involved. Your committee, the Bell people, the staff of the FCC and the accounting committee of the NARUC have been working together since that time. The report of the special committee to the board of directors of the USITA dated Mar. 8, 1956 briefly outlined the committee's views as to the objectives which the rule making should achieve.

On August 21, 1956, your executive vice president, Clyde S. Bailey, wrote to the FCC as follows:

> This association has solicited the views of members of its accounting and plant committees with reference to the matters contained therein. Comments received from these individuals indicate no objections to the proposed change. It is their considered judgment that the proposed amendments are desirable from an accounting as well as from a plant standpoint in view of the fact that the record keeping involved will be appreciably simplified."

The American Telephone & Telegraph Co., in a letter of Aug. 20, 1956, pointed out a few objections to parts of the proposed rule making, but also said, "for the Bell System companies, we again urge that it be made possible for the proposed changes in the Uniform System of Accounts to be made effective by them Jan. 1, 1957 since, as stated in our letter of June 25, 1956, delaying their effective date to Jan. 1, 1958 would obviously defer the savings of millions of dollars."

Left to right: H. D. Fargo of TELEPHONY; A. R. Teifeld of Pittsburgh, Pa.; J. K. O'Shaughnessy of Washington, D. C., and E. H. B. Bartelink of Concord, N. H.

The present report of the Special Committee concludes their work. I know the members of the committee agree with me that the cooperation shown by the Federal Communications Commission staff, the accounting committee of NARUC, the Bell System and the members of your Accounting Committee in solving this problem to the satisfaction of each group, clearly demonstrates the value of working together on common problems.

Briefly, the new procedures contemplate the following changes:

(1) *Account 231 — Station Apparatus.* This account is amplified to include the equipment or apparatus portion of small PBX's and booths in addition to the present equipment includable in this account. It is placed on a cradle-to-grave basis. The concept of retirement units has been abandoned for this account. Instead, there will be major items known as disposition units in terms of which the normal final retirements from this account are to be reported. Each company will maintain its own list of such disposition units. Items normally used as station apparatus repair parts will be included in Account 605, Repairs of Station Equipment, when purchased. All station apparatus, small PBX's and booths will be charged to Account 231 when purchased and remain in this account until final retirement, thereby eliminating all in and out field reporting of station movement.

Left to right: M. R. Thompson of Toledo, Ia.; F. F. Hilgeman of Muskegon, Mich., and D. F. Davison of Spencerport, N. Y.

(2) *Account 232 — Station Connections.* This account will be a combination of present Account 232, Station Installations, and Account 233, Drop and Block Wire; it will also include the installation cost of small PBX's and booths and will be treated as depreciable.

Due to the fact that station installations will be maintained in good working condition and all repairs to such installations during the period that the installations are in service will be charged to maintenance and, because the actual physical life of this plant is greater than the in-service life of the plant due to the changing requirements of the customers, no starting depreciation reserve is necessary for station connections.

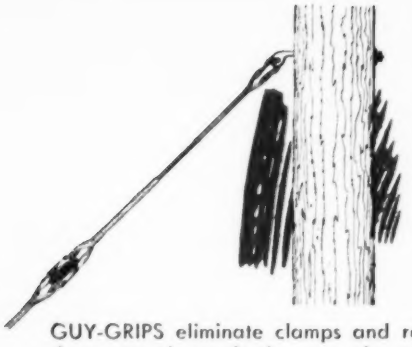
(3) *Account 234 — Private Branch Exchanges.* This account will be limited to large private branch exchanges. Large private branch exchanges are defined as multiple manual boards and dial boards designed for three or more digit operations.

(4) *Account 235—Booths.* This account will be eliminated and the booths will be transferred to Account 231, Station Apparatus. Ordinary furniture now in Account 235 will be transferred to Account 261, Furniture and Fixtures. The installation cost of the booths will be transferred to Account 232, Station Installations.

(5) *Account 607 — Removals and Changes, Wiring Gain and Loss.* This account will disappear. The cost of work on all inward station movement (new installs, reinstalls and reconnects) will be charged to Account 232, Station Connections, and the cost of work on all outward station movement (removals and disconnects) will be charged to the depreciation reserve.

(6) The cost of station apparatus, booths and small PBX's, now in Account 122, Materials and Supplies, will be transferred to Account 231, Station

(Please turn to page 136)



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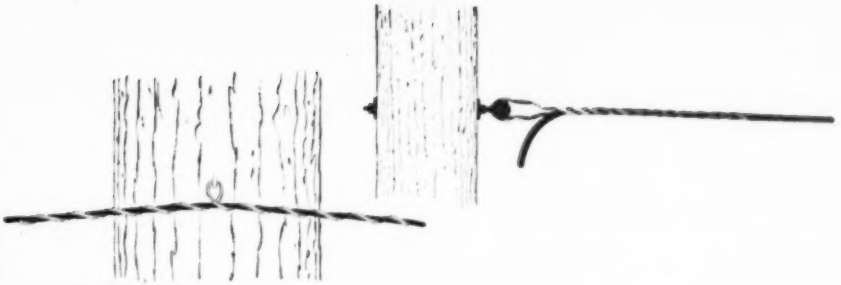

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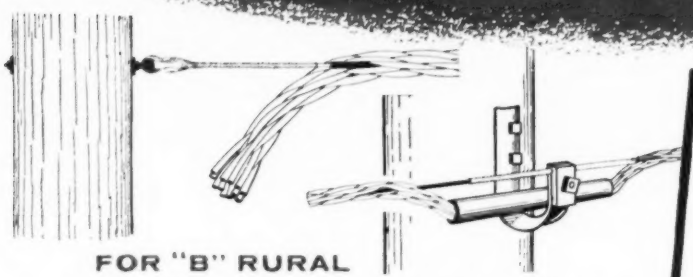

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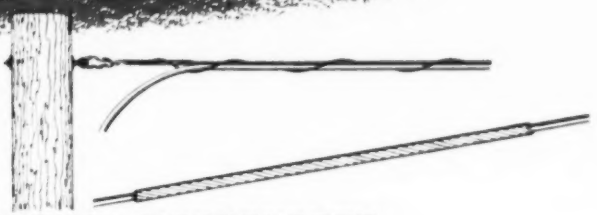

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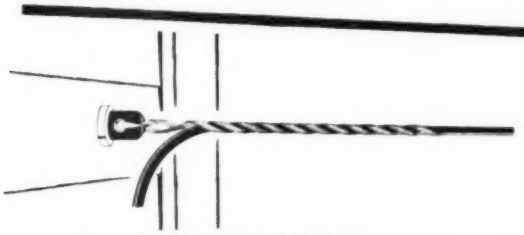

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Recent Developments in Accelerated Tax Depreciation

By JAMES D. LAMB
Public Utility Manager
Arthur Andersen & Co.

(An Accounting Conference Address)

I AM SURE that you are all familiar with the provisions of Section 167 of the Internal Revenue Code of 1954 which permits a larger deduction for depreciation in the earlier service life of new property than would otherwise be available through the use of straight-line depreciation. I do not plan to cover in detail the various methods available for computing accelerated depreciation. This is a separate problem in itself on which many articles have been written.

It seems clear to me that Congress changed the provisions relating to the computation of depreciation for the purpose of stimulating investments in plant and property through the deferral of income tax payments and that the temporary tax reductions are not tax savings.

Recent Developments

During the past year there has been some progress made in establishing the accounting procedures to be followed by a utility using accelerated depreciation for tax purposes. One very signficant principle has evolved—that the deferral of federal income taxes through the application of accelerated depreciation should be reflected in income as a cost for accounting purposes. In other words, the adoption of accelerated depreciation should not be allowed to change net earnings for book purposes from the amount that would be reported if straight-line depreciation were used for tax purposes.

To my knowledge, 23 state commissions have issued formal orders with respect to the accounting procedures to be followed by utility companies claiming accelerated depreciation for tax purposes. On the most important principle there is complete unanimity in that each of the state commissions prescribed accounting that provides for the so-called "normalization" of net earnings. I would like to say parenthetically that I am using the terms "normalized" and "normalization" for the reason that they have common acceptance, since they have been used so frequently in connection with the provision for deferred income taxes. Actually they are poor terms, since they imply an equalization of earnings and there is no equalization of earnings—the provision for deferred income taxes is as much a current cost as the income taxes paid.

Twenty-two of the commissions ruled that charges should be made to the income account to reflect as "normalized" taxes, the amount of federal income taxes that would have resulted through the use of straight-line depreciation. The Wisconsin commission held that net earnings should be "normalized," but that this "normalization" should be accomplished through additional charges to depreciation expense equivalent to the reduction in income taxes.

The commissions have prescribed that the charges to income be recorded on the books by contra credits to either a tax reserve, appropriated surplus, surplus restricted for future income taxes, or, in the case of the Wisconsin commission, by a credit to the reserve for depreciation.

There are a number of telephone companies subject to the jurisdiction of the Federal Communications Commission, which have received accounting orders from their state regulatory commissions covering deferred income taxes. This in itself creates somewhat of a problem, since as yet, the FCC has not taken any formal action regarding the accounting to be followed by companies claiming accelerated depreciation A petition has been filed, however, with the FCC seeking an amendment to the Uniform Classification of Accounts for Class A and B Telephone Companies with respect to the accounting for deferred income taxes.

The petition asks that the credit for deferred income taxes be made to Account 174, Other Deferred Credits. Regardless of the accounting which the FCC may approve, certain telephone companies will probably be in the position of reporting to the FCC on one basis and to state regulatory commissions on another basis as far as the credit for the deferred income tax is concerned.

It is my understanding that the Federal Power Commission is in the process of amending its Classification of Accounts for Natural Gas Companies to make it clear that a reserve for deferred federal income taxes should be provided when accelerated depreciation is utilized. It would seem logical to assume that the Federal Power Commission will also amend its Classification of Accounts for Electric Utilities, since the principles it has approved for natural gas companies apply equally to electric utilities. Again, if this is done, a conflict will exist in those states where the state commission has ordered the credit to be made to some account other than a reserve for deferred taxes.

In my opinion, the deferral of income taxes creates a liability which should be reflected in the balance sheet of a utility company and the most logical way to do this is through the use of a reserve for deferred federal income taxes.

In many of the hearings held in connection with applications for accounting orders, it has been said that the deferral of federal income taxes will be a permanent deferral and, therefore, is actually a tax savings. Such arguments are based on the theory of using depreciation deductions of future periods to offset deductions used in prior pe-

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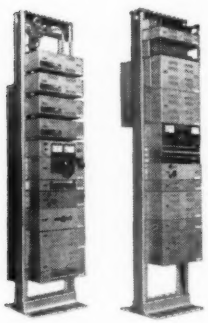

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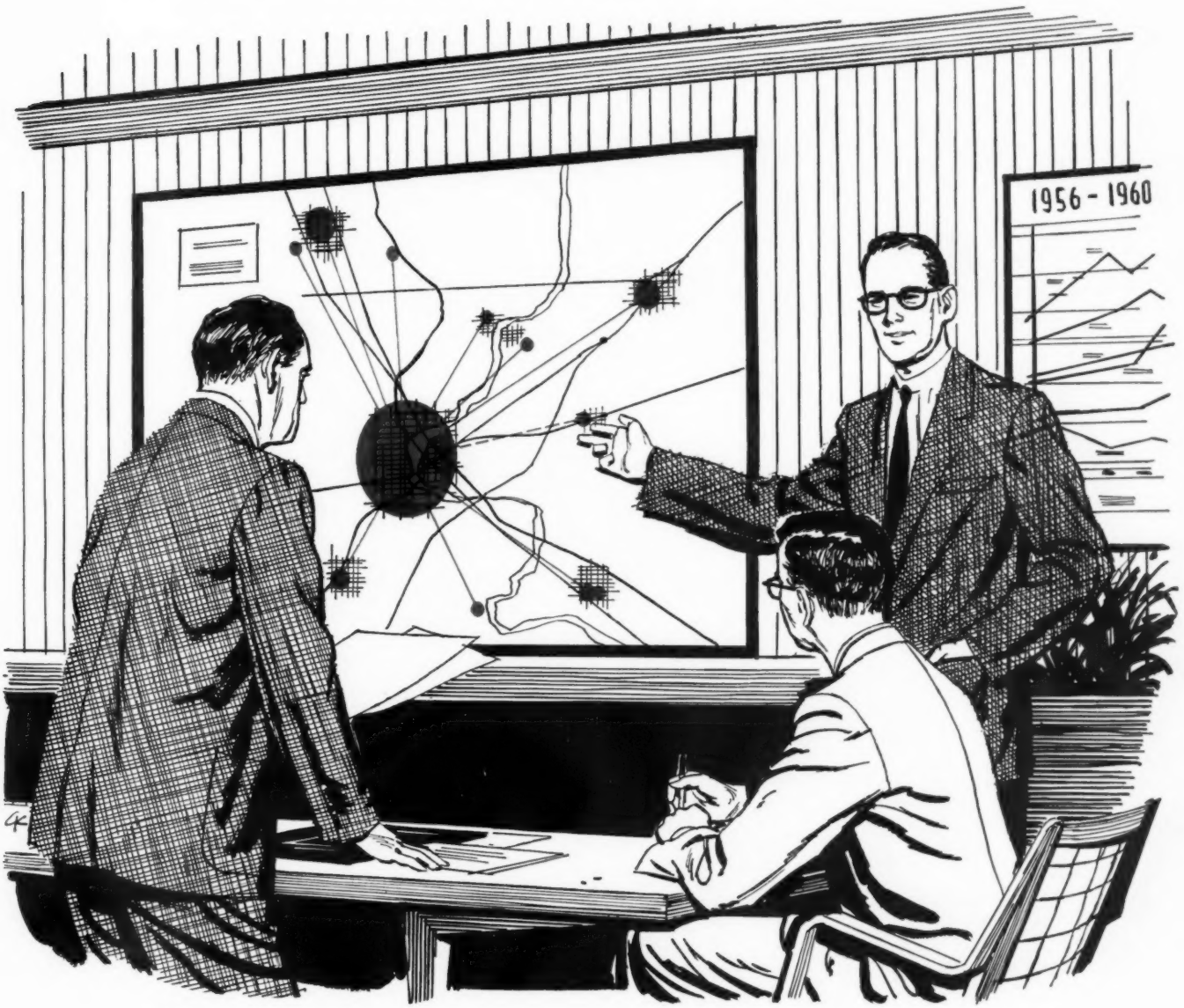

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riods. It certainly does not seem equitable that the security holders should give to current customers a valuable tax right, a depreciation deduction applicable to a specific year's property additions, merely because it is expected that property additions in a subsequent year will provide an offsetting depreciation deduction. This would be the same as "borrowing from Peter to pay Paul." Such a theory does not eliminate the liability for the payment of the deferred taxes at some future date. The liability is just as real as accrued payroll or first mortgage bonds.

Further, there is no assurance that the liberalized methods of depreciation will be available indefinitely. If the law should be rescinded at some date in the future, and the deferred tax liability has not been provided for, the future customers, investors, or both, will be burdened by higher taxes.

Several of the state commissions have prescribed that for those companies adopting accelerated depreciation, the liability for deferred income taxes be reflected in a tax reserve. The Federal Power Commission has also approved this treatment for natural gas companies. Certain of the state commissions, however, have held that the deferred income taxes be recorded in a surplus account restricted for future income taxes. I do not know of any logic that will support a theory that an element of cost properly chargeable to operating expense is, at the same time, a part of the common stockholders' equity. The use of a restricted surplus account, however, can be utilized to accomplish the same purpose as a tax reserve as long as the account is not included in the financial statements as a part of the common stockholders' equity.

Impact on Rate Matters

Undoubtedly, the most significant problem attaching to accelerated depreciation, and one which has received less formal action, deals with the rate aspects. With few exceptions, the commissions which have ruled on the accounting treatment to be accorded tax deferrals under Section 167, have either remained silent as to the treatment of tax deferrals for rate purposes, or have specifically stated that their accounting orders will not necessarily be controlling in rate proceedings.

If regulatory commissions consider that the deferral of income taxes should be passed on to the customers through reduced rates, utilities would not have the benefit of such tax funds which Congress intended. The resultant rate reductions from such a position would certainly be discriminatory against future customers, investors, or both, to the advantage of present customers, since someone would be required to pay for higher taxes as the result of lower depreciation deductions in future years. At the same time, there would be no incentive for management and investors to take the risk that they would be allowed to collect higher taxes in the future, or if allowed, whether economic conditions at that time would be such that the customers would pay the increased rates required to cover the higher taxes. Such a condition could force investors to assume the burden of an inadequate return. Under such conditions a utility company would not be justified in claiming accelerated depreciation for tax purposes.

Left to right: Martha Gene Garrett and Mrs. J. D. Garrett Jr. of Lewisville, Ark.: W. G. Key of Marked Tree, Ark., and J. D. Garrett Jr.

It remains to be seen what position the majority of the commission will take with respect to "normalization" of income for rate purposes to recognize the effects of accelerated depreciation. If they allow a provision for deferred income taxes as a part of the cost of service for rate purposes and at the same time reduce the rate base by the amount of the tax reserve, a company would not be allowed to earn any return on a portion of its property. Management and the investors would have to assume all of the attendant risks. The return on the property constructed with deferred tax funds would be passed on to the customers.

E. C. Weitzell (left) of Washington, D. C., and D. O. Hood of Medford, Ore.

It is interesting to note the comments of the Federal Power Commission in its recent decision in the Columbia Gas case. The commission said, "admittedly Section 167 of the Internal Revenue Code contains no specific mandate to create a reserve account for deferred taxes. Nevertheless, we know of no way to effectuate the clear and obvious congressional intent, except by doing so . . . The argument that the sums in the reserve account will rightfully belong to the ratepayers, or that the ratepayers will bear any burden they do not bear, by reason of the creation of the reserve, is wholly erroneous, as was lucidly explained by the United States Court of Appeals for the District of Columbia in *City of Detroit* vs. *Federal Power Commission*, on Dec. 15, 1955."

The companies that are recording the deferred taxes in a restricted surplus and including such surplus as a part of common equity in their financial statements may have difficulty justifying their position in future rate proceedings. The opposition may take the position that such surplus reserves are only equalization reserves and that the contra charges to income should not be allowed as a part of the cost of service. This is a further argument for the classification of the amounts of restricted surplus for deferred federal income taxes outside of the capitalization section of the balance sheet. There is also the possibility that a commission will include the amount of such restricted surplus in the computation of the cost of money and assign a zero cost to such funds. If the rate of return allowed by the commission reflected the full effect of the accumulated deferred

(Please turn to page 138)

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Growing Importance of Separation Studies

By RALPH W. SHRINER
Staff Engineer
Peninsular Telephone Co.
Tampa, Fla.

(An Accounting Conference Address)

THE SUBJECT of my talk, "Growing Importance of Separation Studies," was chosen not because separation studies in the past were not considered quite important, but because advances in the art of providing telephone services, the ever-increasing volume of interchanged toll messages, and the devising of more equitable methods of settlements are requiring more frequent and more detailed exploration into the cost of handling toll message services.

Telephone companies are engaged in furnishing both intrastate and interstate communications services, including: Exchange, message toll telephone, private line, TWX, etc., and since the intrastate services are subject to the jurisdiction of the several state regulatory bodies and interstate services are subject to the jurisdiction of the Federal Communications Commission (FCC), separation studies are also often made for use in rate proceedings before such regulatory bodies.

The Independents, particularly during the past several years, have associated separation studies with the determination of "A," "B," and "Line Haul" payments by the Bell System companies to Independent companies, as their compensation in connection with joint Bell-Independent toll messages, and in order to emphasize the importance of such studies, with your indulgence, I will first go into some historical aspects of such settlements.

Beginning shortly after the turn of the century, some Independent companies which were not operating in areas also served by Bell System companies, were, by contract, given the right to connect stations of their exchanges with toll lines which the Bell company built to such exchanges. A condition imposed upon the Independents, so privileged, was that they must equip all of their subscribers lines with telephones owned by and rented from the Bell company. The rental rates for these telephones were evidently set by strong-arm bargaining and two adjoining companies, with which I am familiar, contracted for telephones at $2.00 each and $2.50 each per annum. Likewise the commission, then termed discount, on toll messages extended over Bell toll lines, was 15 per cent and 10 per cent, with limitations per message of 15 cents and 10 cents, respectively, for the two companies. Each of these traffic agreements were executed the same year, so it was evident that the company obtaining the $2.00 per annum rental for telephones and the 15 per cent discount on toll messages was a sharp bargainer. This particular sharp bargaining was by one of the early presidents of this association and the founder of the company with which I have been associated for nearly 40 years.

It may be interesting to note here that telephone set rentals were required to be paid monthly in advance and payment for toll messages extended over Bell lines made not later than the 10th of the month following the month in which the calls were made, generally in advance of receiving payments from subscribers. An Independent company was sometimes allowed to connect certain specified toll lines of its own with Bell company lines provided they met certain construction and maintenance standards, in which case message rates were calculated separately for the Bell and Independent sections of the jointly used circuit. At this time, distances over which persons were able to talk were so short and messages so few in number, that streamlined methods of settlement were not considered necessary, and the number of messages and charges were reported message by message each month.

Telephone rentals were later reduced to $1.20 each per annum, with a 20-cent per annum discount if paid annually in advance instead of monthly in advance. It was not until about 1910 that companies were given permission to equip their subscriber lines with telephones other than those leased from Bell, provided however, their efficiency met Bell approval. At the same time, the limitations of commissions per message were increased to 20 cents and 3 cents was allowed for each completed inward message.

Settlements similar to these, but with varying provisions remained in effect for most companies until about 1930, but not until after a considerable number of the Independent companies began to clamor for a larger cut in interchanged tolls, when contracts based on average cents per message (ARPM) was introduced. This new method of settlement specified "Compensation," now termed "A" payment, and "Toll Operating Payment," now termed "B" payment. Line haul prorates equated into cents per message were calculated as in contracts not yet superseded by the current new settlements, excepting that route mileage was used and there was no multiplying factor. These payments were still not based upon average costs of providing the service, but rather, from my observations, again upon bargaining, for final schedules of payment were often higher than those originally proposed.

All of the settlements thus far discussed, specifically excluded payment for use of subscriber lines and other local facilities in connection with toll calls, it being argued that the local exchange rates provided for service to and from the toll switchboard. It was not until January, 1943, that, by ruling of the FCC, toll rates covered service from station to station, when payment

XUM

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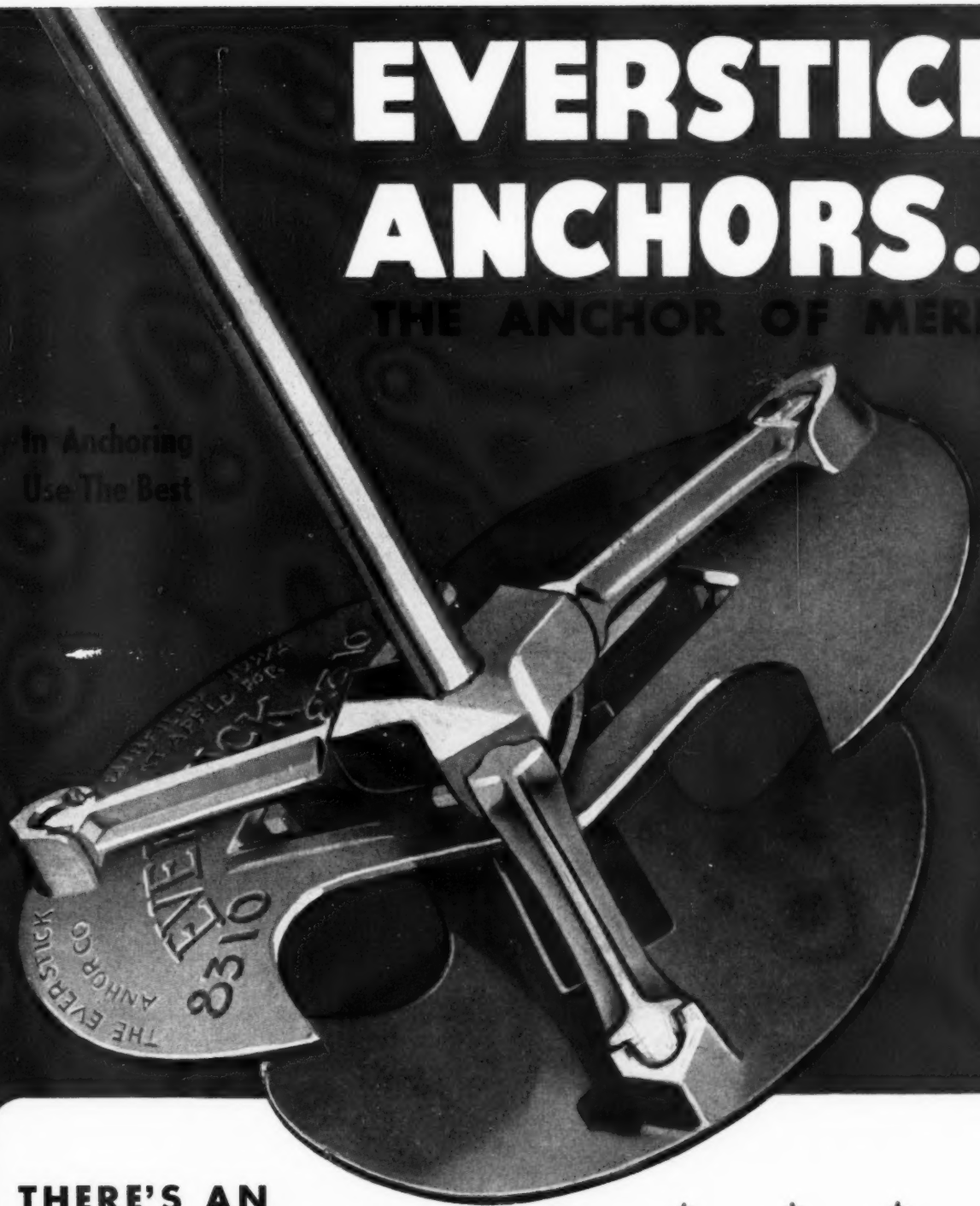
THE ANCHOR OF MERIT

In Anchoring Use The Best



THERE'S AN

EVERSTICK ANCHOR

FOR EVERY USE

6—8—10—12—16" Expanding Types
19 and 23" Cone Types
All of certified malleable iron. Long life--rust resistant.

★ ★ ★ ★

6—8 and 10" 3—Way Anchors. 6 and 8" 2—Way Anchors. 8—10 and 12" 4—Way Anchors. Use Eversticks — they are FIRST CHOICE for maintenance work and new construction.

The Everstick Anchor Co.
FAIRFIELD, IOWA

was allowed Independents for toll usage of their subscriber lines.

While separations studies had been made by a number of companies, principally Bell System companies, beginning as early as 1912 for the purpose of separating investments, revenues, and expenses as between interstate and separate state operations for rate case presentations before regulatory bodies, to my knowledge, it was not until the middle of 1932 that a separation cost study was made by an Independent telephone company for the purpose of determining its costs, including a proper return on the investment in plant used in handling toll telephone messages interchanged with a Bell System company. This study resulted in a larger amount being retained out of the gross billing than had the then applicable cents per message and prorates been applied.

Not long thereafter, using cost separation data taken from a separation study used in a rate proceeding before the Florida commission by the company with which I am affiliated, we determined our traffic agreement then in force did not adequately compensate us for our full costs of handling Bell—Independent messages. Negotiations, which we promptly instituted, resulted in our making, jointly with Bell representatives, a separation cost study of the elements then included. This was before station to station allowance. However, we were allowed an amount for an intangible item which we labeled "ability and readiness to serve" which gave us some compensation for our local facilities. This joint separations study was made during 1938 and resulted in a profitable revision of our contract. We have settled for "A" and "B" functions on a cost study basis beginning Dec. 21, 1938, and similarly for line haul settlements beginning June, 1953.

Prior to January, 1943, separations made for the purpose of determining full costs of providing facilities for and of handling messages interchanged with Bell System was comparatively simple for the use of local facilities in connection with toll calls was not determined. Since January, 1943, additional separations have been required in order to also include an allocation of subscriber line and other local facilities based upon the ratio of the toll use to total usage of such facilities. The term "Slue" factor, that is, Subscriber Line Usage, was coined for this purpose.

Then in 1952, along came the adoption of the Charleston Method which gave substantially a double weighting to the interstate toll usage of subscriber line facilities for which additional separations were required, and now line haul payments which, on an average, compensate Independent companies for their full costs of providing a portion of the toll lines instead of dividing what is left, if any, after "A" and "B" commissions have been deducted. These, together with the introduction of operator toll dialing, 2-5 numbering, type of central offices, and Direct Distance Dialing are all factors which govern full costs, creating an increasing importance to separations.

Left to right: Mrs. W. D. Hansen of Bellevue, O.; Mr. Hansen, Mrs. E. W. Petersen, of Bellevue, and Mr. Petersen.

As to making separations, the basic principles are well laid down in the October, 1947, Separations Manual and the 1952 addenda thereto, which was issued by the NARUC—FCC Special Cooperative Committee on Telephone Regulatory Problems and they are supplemented by the 1955 Independent Telephone Company Separation Procedures.

Relative to these separation helps the NARUC-FCC Separations Manual was the joint work of staff members of the FCC and state commissions and representatives of the American Telephone & Telegraph Co. Preparation of the manual began June, 1941, and it was completed in its present form October, 1947. This manual was prepared primarily for use in statewide separations of Bell System operations, however, the basic underlying principles can be applied to Independent companies and individual exchanges when such studies are required. The 1952 addendum relative to the Charleston Method affects many paragraphs of the manual which have not been rewritten.

Left to right: O. F. Kinsel of Bellevue, O.; R. S. Knutsen of Greenwood, Wis., and N. T. Videan of Bellevue.

The 1955 Independent Telephone Company Separation Procedures were developed for the express purpose of making the recent nationwide "A" and "B" studies, and while much of the procedures and many of the forms can apply to individual company separations, the procedures are not complete for it had been agreed between the USITA sub-committees and Bell representatives, who developed the procedures and supervised the studies, that certain final items would be determined on a national basis and applied by the committees in completing the studies.

Separation procedures for an Independent company's use were started by the Sub-Committee on Separations and set aside, the latter part of 1954 before their completion, so that the recent "A," "B," and "Line Haul" studies could be dispatched. They are presently being worked on and it is hoped complete procedures on a more understandable basis will be available before long.

With present-day volumes of Bell-Independent traffic, the stakes are high and accuracy so important that care

(Please turn to page 140)

TELEPHONE CABLES

For Every Application

TYPE 144

AERIAL AND DUCT

Listed by REA, Type 144 cables are made in three sizes #24, #22 and #19 AWG. They are polyethylene insulated, aluminum tape shielded and jacketed with heavy duty Vinyl. Cables range from 6 to 202 pairs.

TYPE 150

AERIAL AND DUCT

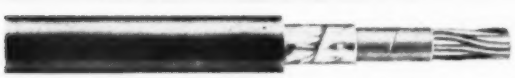
A premium construction offering fully color coded, polyethylene insulated pairs. An .002" copper tape shield, and a hard service vinyl jacket. These cables are made in sizes #24, #22 & #19. Range 6 to 202 Pairs.

TYPE 190

AERIAL AND DUCT

Type 190 offers the excellent electrical characteristics of Polyethylene in the insulation and the jacket. The conductor assembly is aluminum shielded. Manufactured in #24, #22 & #19 AWG. Range 6 to 202 Pairs.

TYPES 160 & 162



SELF-SUPPORTING CABLE

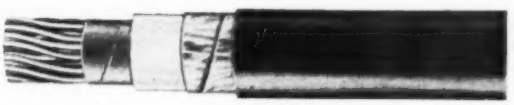
Type 160 with Copperweld conductors or Type 162 with hard drawn copper conductors are both insulated with Polyethylene. The pairs are fully color coded. A copper shield and tough vinyl jacket protects the assembly. Made only in #19 gauge in 6, 11, 16 & 26 pair cables.

TYPE 122

INSIDE TELEPHONE

PWC Inside Telephone Cables are vinyl insulated and jacketed. They feature fully color coded pairs and a Nylon Rip cord for easy stripping. Made in sizes #24, #22 & #19, range 2 to 101 Pairs. Brown or Ivory.

TYPE 166



BURIED

An excellent design for direct burial. Polyethylene insulated, fully color coded pairs. Pair assembly covered with extruded Polyethylene belt, Copper shield, and Vinyl Jacket. Range 6 to 101 Pairs.

TYPE 177

RURAL DISTRIBUTION

PWC Rural Distribution Wire is made in constructions from 1 to 16 pairs. Each conductor is insulated with polyethylene and jacketed with colored vinyl. Pairs are assembled around a 109-E steel messenger wire.

NO. 214 - RURALINE - NO. 212

INSULATED LINE WIRE

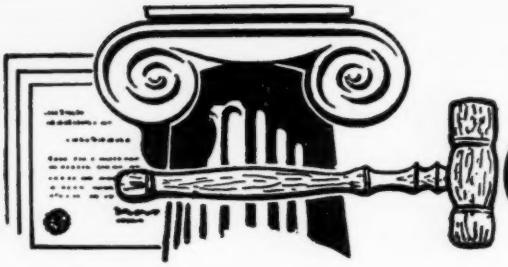
The new polyethylene insulated line wire designed for low cost rural service extensions. Two Copperweld conductors are insulated in parallel. Size #14 is identified as No.-214, size #12 as No.-212.

OTHER PWC TELEPHONE PRODUCTS

There are many additional products manufactured by PWC for the Telephone Industry. In addition to the complete line of thermoplastic inside telephone wires, Urban and Long-Span distribution wires, many custom cables are manufactured to customer specifications. For additional information or for special cable engineering contact your nearest PWC distributor or write direct to the Plastic Wire & Cable Corporation.

PLASTIC WIRE & CABLE CORPORATION

JEWETT CITY, CONN.



Courts and Commissions

N. Y. Commission OKs Sale Of Bankrupt Company

The New York Public Service Commission on Oct. 17 approved the sale of the bankrupt Killawog Telephone Co. to Marathon Killawog Telephone Co., Inc. At the same time, the commission granted a provisional certificate of public convenience and necessity to the purchasing company, subject to termination if it does not proceed expeditiously with its proposed program aimed at modernizing the company's operating plant.

The commission also authorized the Marathon Killawog company to borrow up to $374,000 under a 2 per cent 35-year mortgage from the REA, subject to a requirement that the new company deposit all such funds in a special account to be used solely for the construction and rehabilitation of its system. Marathon Killawog was also authorized to issue 600 shares of no-par value stock to raise $60,000 with which to complete its purchase and obtain working capital necessary for its initial operations.

Killawog Telephone Co. serves 738 subscribers, most of whom reside in or near Marathon, Killawog, Center Lisle, Messengerville and Texas Valley. The bulk of its service is rendered through a manual central office at Marathon and the remainder through a rented automatic office at Center Lisle.

In 1954, because of the unsatisfactory service being rendered by the company, the commission ordered it to file a petition for reorganization under the Federal Bankruptcy Act. Thereafter, an involuntary petition in bankruptcy was filed against the company and on May 13, 1955 it was adjudicated a bankrupt. It has been operated since by a court-appointed trustee.

At a public hearing on the proposed sale, the trustee testified that he had applied to the court for permission to sell the property in order to obtain some cash for Killawog's creditors and to put the company into the hands of someone who would and could operate it for the benefit of the public in its service area.

On Nov. 21, 1955, H. Russell Cammer purchased the property at public auction, subject to approval by the commission. On Feb. 3 he assigned his rights as buyer to the newly formed Marathon Killawog Telephone Co., Inc., of which he is president.

N. C. Company to Merge Into Central Telephone

G. N. Hutton, president of Hickory (N. C.) Telephone Co., on Oct. 15 announced that the stockholders of his company have agreed to cooperate to vote merger into the Central Telephone Co. The Hickory Telephone Co. serves more than 16,000 stations in Hickory and nearby exchanges.

Central Telephone Co. of which Judson Large of Chicago is president, furnishes service to 29,000 telephone subscribers at 20 exchanges in North Carolina including the cities of Asheboro, Elkin, Leaksville, Mount Airy, North Wilkesboro and Spray. In addition the Central Telephone Co. with 85,000 subscribers furnishes service in West Virgina, Iowa, Minnesota and North Dakota, and through affiliated companies, the Virginia Telephone & Telegraph Co., Middle States Telephone Co. of Illinois, LaCrosse Telephone Corp., and Southeastern Telephone Co., serves 150,000 subscribers located in Florida, Georgia, Illinois, Virginia and Wisconsin.

It is anticipated that the merger will be completed before the end of this year. Mr. Large has annouced that upon completion of the merger Mr. Hutton is to be elected a director of Central Telephone Co.

N. D. Companies Apply for Rate Increase, Purchase OK

A hearing on a request of the Dunn Telephone Mutual Aid Corp., Killdeer, for authority to obtain a long-term REA loan and to construct and operate telephone facilities was set by the North Dakota Public Service Commission for Oct. 10.

The corporation proposes to borrow $876,600 from the REA to finance purchase of property owned by the Stacker Telephone Co., Halliday, and to construct telephone facilities in Dunn, McKenzie, Billings, Stark and Mercer counties.

The commission was scheduled to hold a hearing the same day on application of the Richardton & Taylor Telephone Co., Taylor, for authority to increase its rates upon conversion of the Taylor exchange to automatic operation.

Kan. Commission Authorizes Sale of Independent

Sale of the Elkhart (Kan.) Telephone Co. was announced by its former owner, S. B. Walker to W. C. Whitecotton of Amarillo, effective Oct. 1 (TELEPHONY, Sept. 15, p. 33).

Approval of the sale was given recently by the Kansas Corporation Commission.

Mr. Walker bought the system in 1949 and has operated it since, with Jack McCrary as manager. No change in management will be made by the new owner, he has announced.

Mr. Whitecotton has spent the past 30 years with the Bell telephone system working in a number of departments.

Applies to Issue Stock; Sell Missouri Companies

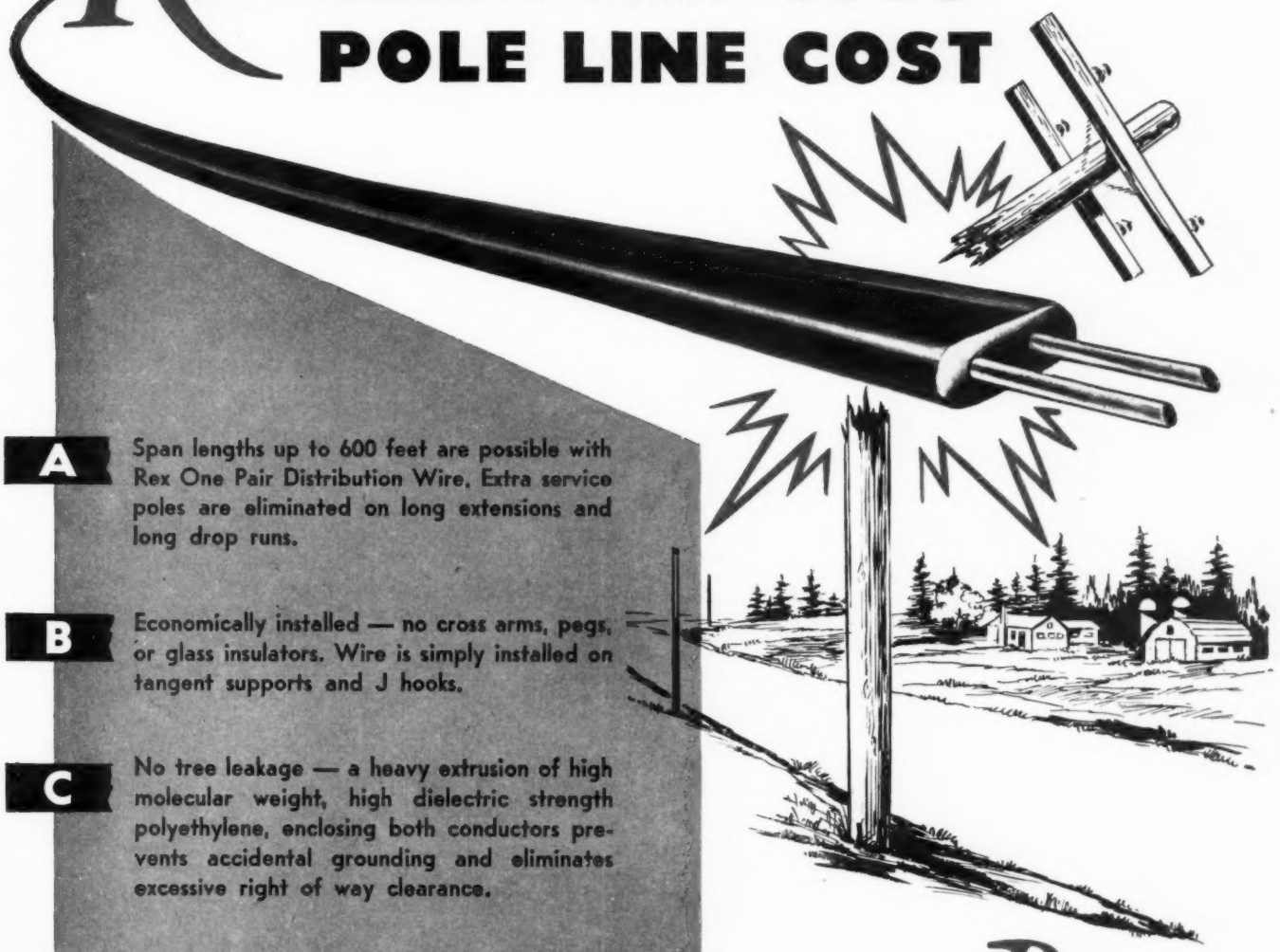
Application was recently made to the Missouri Public Service Commission by Jack A. Rickel to sell the Russellville Telephone Co. to the Leewood Telephone Co. Inc. Mr. Rickel also made application to sell the exchange at Regal to the Leewood company.

At the same time Mr. Rickel and the Leewood Telephone Co. made joint application to issue 20,000 shares of common stock at the par value of $1.00.

Need to Support Colleges

"I feel very strongly that American enterprise, both corporate enterprise and individual enterprise, has a real responsibility to support our institutions of higher learning. It is a responsibility that cannot be dodged by American business."—ALFRED P. SLOAN JR., *chairman of the board, General Motors Corp.*

REX ONE PAIR CUTS POLE LINE COST



A Span lengths up to 600 feet are possible with Rex One Pair Distribution Wire. Extra service poles are eliminated on long extensions and long drop runs.

B Economically installed — no cross arms, pegs, or glass insulators. Wire is simply installed on tangent supports and J hooks.

C No tree leakage — a heavy extrusion of high molecular weight, high dielectric strength polyethylene, enclosing both conductors prevents accidental grounding and eliminates excessive right of way clearance.

D Excellent transmission characteristics — similar electrical properties to R.E.A. listed Rural Distribution Wire assure good subscriber service.

E Easily transposed — no special brackets; simply twist span at installation. Cross talk and induction noise are kept to a minimum.

F Ordering data: Two conductors #12 or #14 AWG Copperweld or .083 steel. 5,000 or 15,000 foot reels.

Other REX TELEPHONE PRODUCTS

EXCHANGE AREA CABLE
R.E.A. LISTED
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R.E.A. LISTED
URBAN DISTRIBUTION WIRE
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SEND FOR TECHNICAL SPECIFICATIONS and PRICES

THE REX CORPORATION

100 HAYWARD ROAD, WEST ACTON, MASS.

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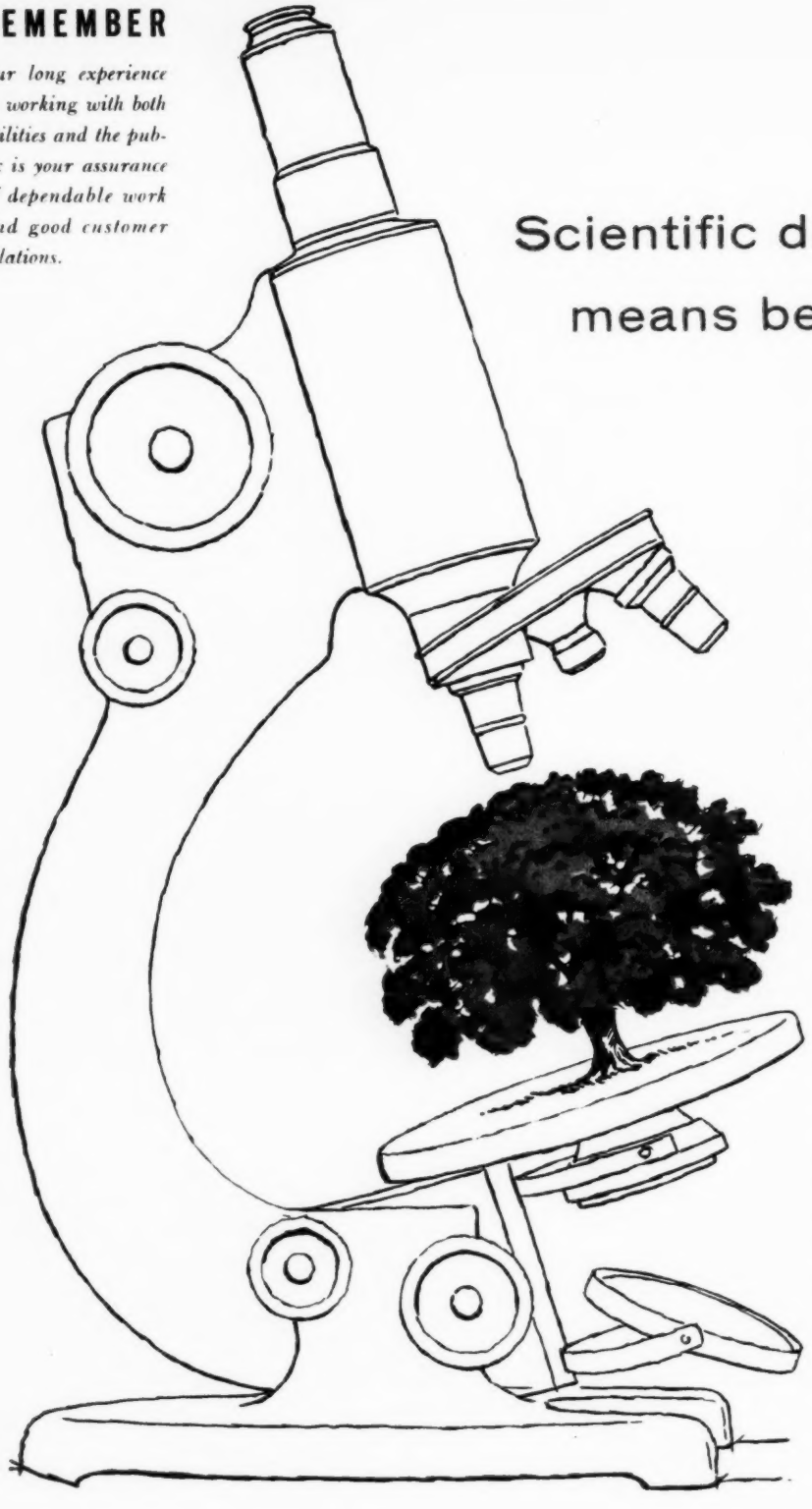
Our long experience in working with both utilities and the public is your assurance of dependable work and good customer relations.



Scientific diagnosis means better tree care . . .

The basis of any curative treatment for either plants or animals is accurate diagnosis, plus the skill and experience to bring it to a successful conclusion. This means research, not guesswork as well as the best of equipment and ability.

You won't see many tree laboratories comparable to our 200-acre experimental ground and research unit at Stamford, Connecticut, where the day-to-day problems encountered by our field men are diagnosed and ideas for the protection of shade trees are tested and developed under actual growing conditions. These laboratories call for a big investment in both time and money. But to us who want to be sure of results, this painstaking research for the best possible treatment is worth it.

Couple this with an efficient highly skilled field force, thoroughly familiar with local conditions, and you have the well balanced Bartlett organization capable not only of rendering scientific diagnosis but of executing the prescribed treatment in efficient, economical fashion. It is the reason why more and more people are turning to the Bartlett Way—the Scientific Way. It costs no more and it is safer and more economical in the long run.

Consult your local Bartlett representative today for a study of your tree situation. You will benefit by his recommendations.

The Bartlett Way

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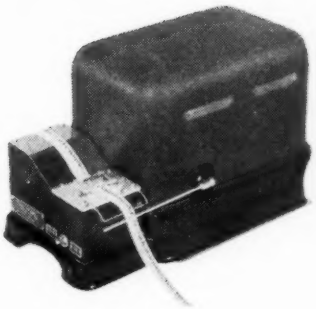
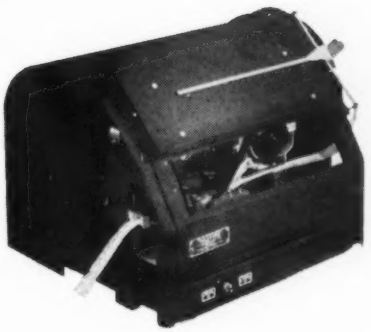


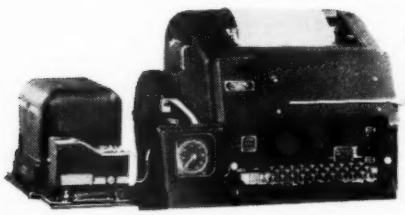
TAPE TRANSMITTER DISTRIBUTOR



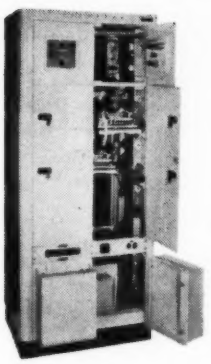
TYPING REPERFORATOR

TELETYPE EQUIPMENT MEETS THE GROWING DEMAND FOR PRINTED COMMUNICATIONS

Send-Receive Printer, Tape Transmitter Distributor, Keyboard Tape Perforator

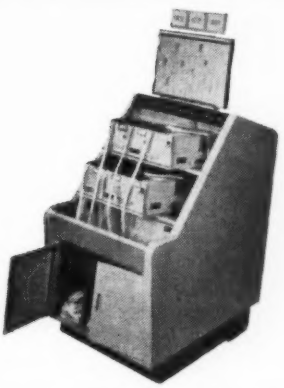


COMPOSITE SET



Receiver Cabinet

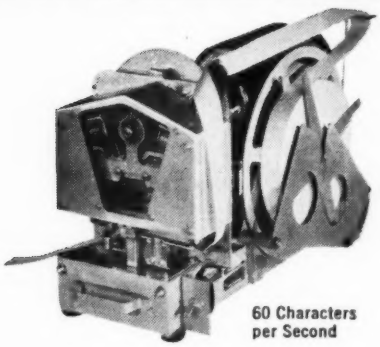
"TORN-TAPE" RELAY EQUIPMENT



Transmitter Cabinet

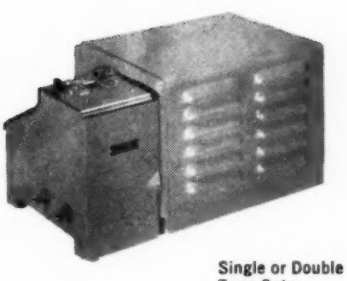
"TORN-TAPE" RELAY EQUIPMENT

TELETYPE EQUIPMENT MEETS THE GROWING DEMAND FOR PRINTED COMMUNICATIONS



60 Characters per Second

HIGH SPEED TAPE PUNCH



Single or Double Tape Gate

HIGH SPEED TAPE READER

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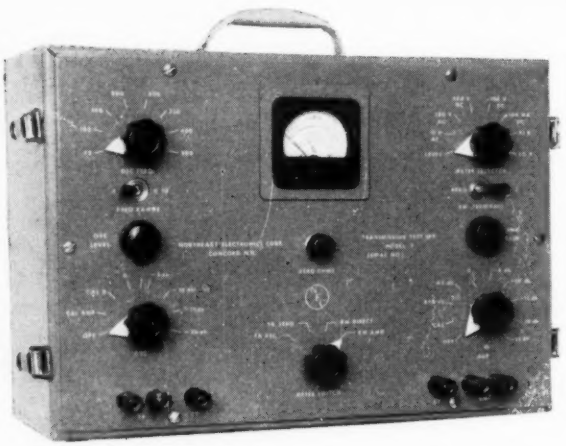
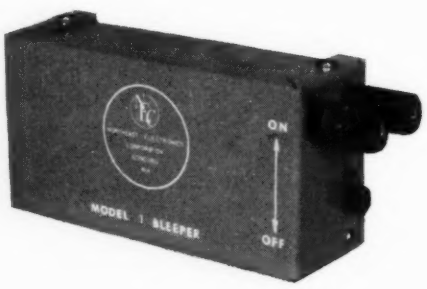
TRANSMISSION Measuring Equipment

MODEL 1060 ARTIFICIAL LINES to simulate proposed transmission circuits.

MODEL 3 TRANSMISSION TEST SET for measurement of transmission in the audio range, voltage, current and resistance. (Models available for specific applications or carrier requirements.)



MODEL 1 BLEEPER transmits distinctive audio tone to trace circuits or cable faults.



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One Arrow staple gun fastens them all!

ONLY ARROW'S T-25 STAPLE GUN TAKES 3 STAPLE SIZES TO FASTEN ANY INSIDE OR OUTSIDE WIRE UP TO ¼" DIAMETER!

Tapered striking edge gets into tight corners!

- T-25 staple gun holds ⅜", 7/16", and 9/16" round crown, rust resistant staples, a full ¼" in width.
- Safe! No short circuits possible automatic mechanism stops staple at right height.
- Short span handle provides comfortable grip – minimizes fatigue.
- Arrow tackers are jam-proof! Can't jam even when struck against metal! Never any lost time on the job. Fully guaranteed
- No wire sag ever! If staple used doesn't hold wire taut, simply use next shorter leg length to insure firm hold and neat job.
- Staple leg lengths are long enough to insure firm hold in wood, plaster or composition board, etc. Tack-pointed staple legs diverge to give even greater holding power.
- Check staple supply in tacker simply by looking on underside of gun.

T 25 LIST PRICE **$15.00**

Try Arrow without obligation!
Tackers will sent on approval for testing purposes. Send request to Telephone Division.

Available at your regular supply house. Priced for volume use!

ARROW T-75 FOR ANY INSIDE OR OUTSIDE CABLE UP TO ½" IN DIAMETER!

- T-75 tacker holds 9/16", ⅝" and ⅞" tack-pointed, rosin-coated staples, a full ½" in width
- Fastens 21 pair inside wiring cable, 26 pair, 12 pair wires, etc.
- Has all above mentioned Arrow features (except tapered head) to insure maximum speed and efficiency of operation!

T-75 LIST PRICE: **$15.00**

ARROW FASTENER CO. INC. 1 Junius Street, Brooklyn 12, N. Y.

INDEPENDENTS LOOK TO FUTURE

Concluded from page 22

In order for our board of directors to act intelligently in this matter a questionnaire was sent out with a member letter to all of our member companies last month. The information contained in those questionnaires which have been returned is now being compiled and will be submitted to our directors at our meeting here. You will be apprised of the results shortly.

What About the Small Company?

There is one other matter of importance I would like to discuss with you and then I will have concluded. As we consider the challenges that lie ahead, I can hear some of you asking what about the small telephone company? We all know that the number of Independent companies has been shrinking fast these past few years, most of the decrease being in the ranks of the smaller companies.

There are now approximately 4,700 Independent telephone companies in the United States. Some 700 of these companies are large companies. The remaining 4,000 companies operate not more than 1,000 telephones per company. In fact, approximately 3,700 of these 4,000 companies, operate not more than 750 stations each. Some of the small companies that have disappeared as separate companies have merged with other small companies. But most of them have been taken over by nearby and larger companies, and in most such cases the smaller company was in a distress situation; the large and rapid rise in costs and expenses had made it uneconomic to operate as a separate unit.

Most of the troubles experienced by the small telephone company in the years immediately following the war were economic ones, but the problems that many of them now face are, I believe, of a different kind. Our industry is undergoing the greatest rehabilitation and modernization program of its history. The quality of all types of service is being raised to higher standards, and we are offering a variety of new services, including operator toll dialing which eventually will become customer toll dialing. The problem of the small company, of course, is to keep up with the parade.

As a writer in one of our trade magazines recently pointed out—and I agree with his conclusions—the small company can remain in the picture only if it installs modern plant and equipment and only if it provides high-quality service. And this may be easier than it sounds, because experience definitely has shown that if a company has good plant and good service it can obtain fair and adequate rates because the public has shown its willingness to pay good rates for quality service. All of which adds up to the fact that the small telephone company, including the locally-owned company, and the family-owned company can remain a going concern and a prosperous unit of the telephone industry if it is able to do a service job. In some cases it is a big "if." Through the help of state associations and the USITA, new inspiration has been breathed into many companies. More mergers and consolidations, of course, are bound to come, if the smaller companies take the easiest way out.

So much for consolidations, personnel requirements, the challenges of change and progress. So much for our problem of growth and expansion. What more than I have already tried to indicate can we do about them?

Our Interests Lie Together

Above and beyond all that I have said, we will need to work with each other in meeting these problems as we come into our common heritage. How can we work more closely together? The answer is right here. Right in this room. Obviously, this is a role designed and made to order for the industry's state and national trade organizations. Here, in the United States Independent Telephone Association, we have the means and the mechanics, if you please, for checking our progress, for propelling our movement forward, for protecting our common interests, and for jointly facing up to the job that lies ahead.

To grasp the meaning of what our association can mean to us, you have only to observe the attendance at this convention and consider the program which is before you. What your association has done in the past year, can be done even better in the future if we only realize the potential of this instrument within our hands, our own USITA.

Consider well what has been done about better legislation, better public relations, better employee recruitment policies. Consider well what we have been able to develop by way of sound advice on better accounting, commercial, traffic, and plant practices, and our help to the small companies.

This is the mood in which, I hope, you will appraise all these things to be unfolded before your eyes and ears at this convention. It is all good; but it could be even better, if we only realize the immensity of the job ahead and the benefits to be gained from active participation in the work of this association.

USITA Answers Needs

I was impressed recently by the words of George P. Lamb, well-known Washington attorney and a recognized authority in the trade association field, who said:

"Trade associations are essentially democratic in their organization. Dues are weighted in accordance with ability to pay. Freedom of speech is an indigenous right. Knowledge is exchanged. The smallest company's executive can be and frequently is elected to the presidency. The exercise of democracy in its purest sense is found more in trade associations than in most other organizations in society.

"When democratic institutions are crumbling around us in the political world, when the paternalism of the American government encompasses the welfare of the individual from the cradle to the grave, and when the very security of the country seems to demand procedures foreign to the freedoms we have known, the trade association stands as a powerful institution which can, if encouraged, help guarantee the continuation of democratic institutions."

The USITA meets all these standards enumerated by Mr. Lamb, and it stands today, as it has for nearly three-score years, as a bulwark of strength on the fighting line in behalf of our great industry. Its unselfish services will continue to help the industry go on to greater triumphs in its proud tradition of public service.

A wider knowledge of the activities of our national association will help cement the feelings of mutual relationship among those who have faith and confidence in the private enterprise system—the system that has been so well exemplified since the return of the century by Independent telephony.

Never has the association been better geared for important service to its members than now. It has a large number of vital projects on its agenda. With the continued support and cooperation of Independent operating companies, manufacturers and suppliers, directory publishers, and trade magazines, and other firms which specialize in meeting the needs of our industry, we can go on to new goals. And, with God's help, we shall reach those goals.

Sees Shortage of Managers

"The process of just letting the cream rise to the top is all too slow. Our country is critically short of competent industrial managers and we need to develop administrators as rapidly as we can."—DONALD J. RUSSELL, *President, Southern Pacific Co.*

Toll Billing– 1956 style

Low-cost Recordak Junior Microfilmer cuts billing time 45% for more than 200 telephone companies using this unique system.

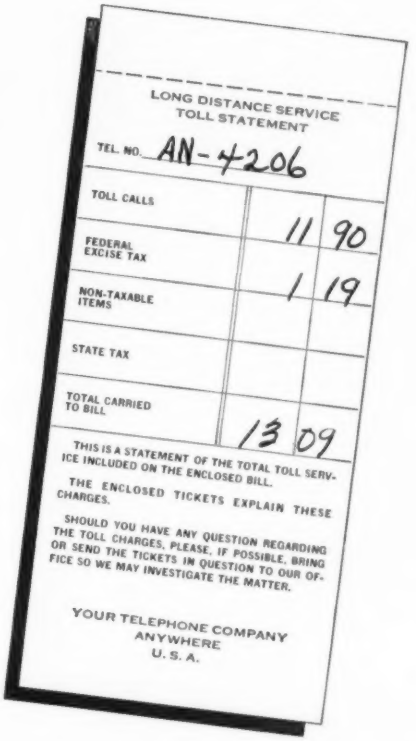
5 entries or less per bill

No matter how many toll calls a subscriber makes—the bill will look like this.

Just posting the totals does the trick because the toll tickets are microfilmed and sent out with the bill. Transcription of detail information from each toll ticket to bill is eliminated.

This cuts billing time 45% or more. Subscribers welcome the complete information provided by the original toll ticket for each call. The company retains a complete, compact photographic record of all bills rendered.

All you need is a Recordak Microfilmer which you can rent for as little as $17.50 per month; or buy for as little as $550. Write for detailed information and copies of actual case histories.


LONG DISTANCE SERVICE
TOLL STATEMENT

TEL. NO. AN-4206

TOLL CALLS	11	90
FEDERAL EXCISE TAX	1	19
NON-TAXABLE ITEMS		
STATE TAX		
TOTAL CARRIED TO BILL	13	09

THIS IS A STATEMENT OF THE TOTAL TOLL SERVICE INCLUDED ON THE ENCLOSED BILL.

THE ENCLOSED TICKETS EXPLAIN THESE CHARGES.

SHOULD YOU HAVE ANY QUESTION REGARDING THE TOLL CHARGES, PLEASE, IF POSSIBLE, BRING OR SEND THE TICKETS IN QUESTION TO OUR OFFICE SO WE MAY INVESTIGATE THE MATTER.

YOUR TELEPHONE COMPANY
ANYWHERE
U. S. A.

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming —and its application to telephone routines

"Recordak" is a trade-mark

MAIL COUPON FOR FREE FOLDER

RECORDAK CORPORATION, *(Subsidiary of Eastman Kodak Company)*
415 Madison Avenue, New York 17, N. Y.

HH-10B

Please send folder describing Recordak Toll Billing System in detail.

Name_____ Position_____

Company_____

Street_____ City_____ State_____

DEPARTMENT OF TECHNOLOGY
BUFFALO AND ERIE COUNTY PUBLIC LIBRARY

REPORT OF EXECUTIVE VICE PRESIDENT

Continued from page 26

Office of Defense Mobilization

The Office of Defense Mobilization is a part of the Executive Office of the President and is headed by a director, Arthur S. Flemming. By the terms of the Executive Order, the director is required on behalf of the President to direct, control, and coordinate all liaison activities of the executive branch of the government including but not limited to production, procurement, stabilization, and transportation activities.

The Order also authorizes the director to "issue such directives . . . on policies or operations to the federal agencies and departments as may be necessary" to carry out the programs developed. The order recites that "it shall be the duty of all such agencies or departments to execute these directives."

Under the authority so granted, the ODM delegated to the FCC the responsibility of preparing a system of priorities for the restoration of essential private line service in the event of national emergency. The commission last summer developed such a plan which was sent out in the general mailing of the USITA.

It was under the auspices of the ODM that "Operation Alert" theoretically involving the bombing of 76 areas in the United States was conducted on July 30. Although communications men recruited into an Executives Reserve from many branches of the communications industry, including the Bell System, participated in the exercise, no person was recruited from the Independent industry and hence our branch of the telephone business had no opportunity to participate.

I look upon this as a serious omission on the ODM's part. It has been drawn to the attention of that federal agency and I believe steps are now being taken to recruit qualified persons for the Executives Reserve from our branch of the telephone industry.

Hush-A-Phone Case

It is a rare thing for our association to participate in court litigation. One issue, however, came up during the year upon which our board of directors deemed it advisable to take action. It involved the foreign attachment provisions of telephone company tariffs as applied to the Hush-a-phone, an acoustical device placed over a telephone transmitter to hush the sound of one's voice so that those in the same room may not hear what is being said. It is manufactured by Hush-A-Phone Corp. and sold directly to customers.

The tariff provisions were challenged several years ago in a complaint filed with the FCC. After extensive hearings, in which our association and the Bell System presented testimony, the commission rejected the complaint. The commission found that the Hush-a-phone adversely affects transmission. The Hush-A-Phone Corp. thereupon instituted suit in the U. S. Court of Appeals for the District of Columbia attacking the validity of the commission's holding.

Because of the importance of the general principle involved, our association intervened in the litigation and our counsel participated in oral argument.

Committee Activities

Our association has 23 committees with a total of 135 members together with 14 Regional Small Company Committees with an additional 76 members. The committees are helpful reservoirs of information on practically all aspects of telephone operation and willingly offer advice and help whenever consulted.

Their duties and jurisdiction are carefully outlined annually by our Executive Committee. Each committee knows exactly what it should do and does not impinge upon or allow its activities to overlap those of any other committee. From most of the committees reports will be made either directly to this convention or to our board of directors and in either case copies will be available in printed form for those desiring them. . . .

Toll Compensation

The importance of the toll compensation activities of the USITA will instantly be manifest when it is borne in mind that toll compensation accruing to Independent companies on business interchanged with Bell telephone companies in 1935 was only 12 million dollars. By 1955, this had risen to 140 million dollars.

Our (Toll Compensation) committee achieved another important goal in May of this year with the completion of negotiations with the American Telephone & Telegraph Co. that provided additional toll compensation to the Independent telephone companies of approximately 11 million dollars a year. . . .

(See address of W. R. Jarmon, chairman of USITA Toll Compensation and Settlements Committee, presented in this issue, for further details.)

USITA Advertising Program

For many years, our branch of the business was an indirect beneficiary of the long-sustained advertising program of the Bell System, advertising which that highly successful corporation has found rewarding in its own behalf. With the increased demands for service in our own areas it became necessary to develop new sources of financing for expansion and plant improvement. Our advertising program has assisted in this regard.

It also became desirable to give Independent employes a sense of belonging to an essential business through public knowledge of the far-flung operations of the Independents. It likewise seemed only appropriate that the American people should become acquainted with the fact that but for the existence of the Independent telephone companies serving two-thirds of the geographical area of the nation, the nation's communication network would not be a complete one. Here again our advertising program is paying off. . . .

Expression of Appreciation

The summary of USITA activities which this report contains affords persuasive evidence, I believe, that the USITA has been and will continue to be a constructive force. The goals that have been achieved have come from the combined efforts of many people, a working together under the inspiration of common leadership.

I take this opportunity to express thanks to those persons in the field who have responded to call whenever help has been needed on matters with which our association deals in the national arena. These people have included the members of our board of directors, the secretaries of state telephone associations, committee members in both national and state associations, and individual company representatives.

On behalf of myself and the people associated with me in the Washington office I also want to embrace this opportunity to express gratitude for the confidence that has been reposed in us and for the privilege of being of service to so important and vital a part of the American economy as ours.

Future Responsibilities

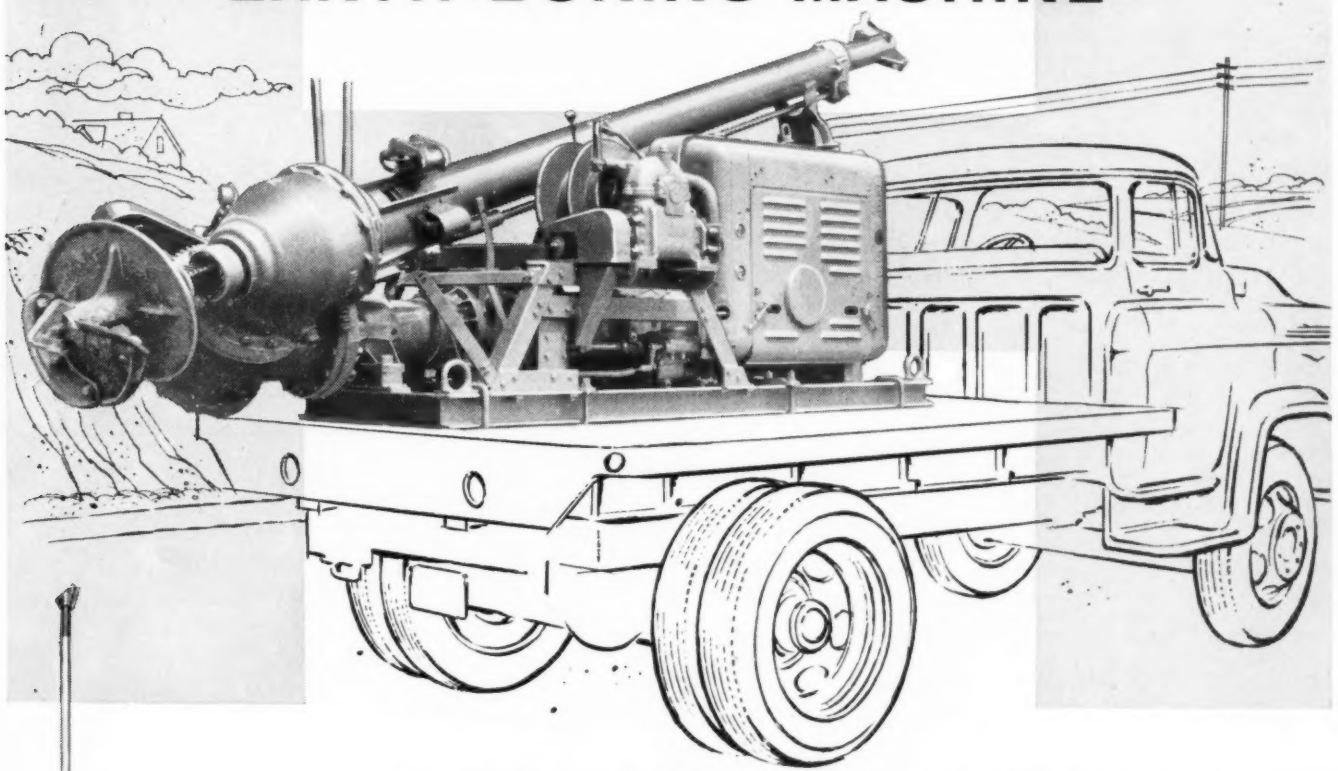
Certainly the world will little note nor long remember what I have said in this report. I shall now bring it to a close. But before doing so it occurs to me that I should mention a few things that must engage our attention in the period that lies ahead.

(1) We must conduct an aggressive merchandising campaign, bearing in mind that so far the industry has barely touched the surface of American use of the telephone notwithstanding the greatest saturation in the world.

(2) We must take advantage of the most advanced means of improving and

easy to put on . . .
easy to take off!

HIGHWAY'S SKID-MOUNTED
EARTH-BORING MACHINE



Exclusive!

Highway Telescoping Derrick

The telescoping derrick (3500-lb. capacity) can be extended 28 ft. 6"—derrick retracts for convenience of operation. Available as optional equipment on the Model "HC" and "HCMS" machines.

Digs the Hole and Sets the Pole in any Soil!

HIGHWAY

A Division of the Equipment Department of Marsh-Chapman & Scott Corp.

Here's a heavy-duty earth-boring machine with mounting versatility seldom found in such a rugged unit. Highway's HCMS skid-mounted earth borer can be truck-mounted, tractor-mounted, or mounted on almost any type of conveyance.

ECONOMY OF OPERATION — The versatile skid-mounted unit eliminates costly mounting charges. The entire machine can be quickly mounted or removed from the platform, allowing the vehicle to be used for other work.

A COMPLETE UNIT — the HCMS is integrally assembled with clutch, transmission and a long-life Continental Red Seal 226-cubic-inch engine. It digs holes from 9" to 36" in diameter in any soil condition — even in rock when equipped with a special auger.

DIGS AT ANY ANGLE UP TO 90° at right angles to the vehicle and up to 60° in line with it. Leveling mechanisms permit quick adjustment to dig vertical holes regardless of vehicle position. Your choice of platform or ground control allows full visibility and automatic safety.

SETS BIG POLES with your choice of integral winch and derrick or completely automatic telescoping derrick.

UTILITY DIVISION
HIGHWAY TRAILER COMPANY

Headquarters: EDGERTON, WISCONSIN

Manufacturers of Public Utility Bodies • Earth-Boring Machines • Pole and Cable Reel Trailers • Winches •Power Take-Offs • Service Accessories • Commercial Trailers • Trailerized Tanks and Dry Bulk Haulers

SALES AND SERVICE IN PRINCIPAL CITIES

extending our service, acting with boldness in accepting new technologies.

(3) We must be careful to train men and women to take their place in the management, supervisory, technical and other branches of our business.

(4) We must open up more and more avenues of financing so that ever increasing demands for telephone service may be met.

(5) We must continue to be diligent on the legislative front in order to make certain on the one hand that harmful legislation is defeated and on the other hand that meritorious legislation may have a chance of enactment.

(6) We must continue to be alert to detect regulatory and other governmental trends in order to be in a position to support the good and call attention to the bad.

(7) We must continue as a cohesive, coordinated industry when common problems arise so that by concerted effort, a pulling together, combined wisdom and strength may be brought to bear in providing satisfactory solutions.

(8) We must not lose sight of the fact that into the hands of telephone management have been entrusted the savings of the investor and that our position of trusteeship calls for never-ending vigilance to see that the interests of the one indispensable man in a free economy receive adequate recognition.

(9) We must continue to provide dynamic and enlightened leadership so that as an industry we may acquit the public service obligations resting upon us.

(10) We must ever remember that we are engaged not only in an essential calling but one impressed with a public use and hence subject to the high standards of public regulation.

In giving attention to all of these, we have a right to look to the USITA for guidance, inspiration and leadership.

One Company's Creed

An individual enterprise system that depends upon everyone—businessmen with leadership, employes with willingness, investors with courage and consumers with judgment—has made America economically great, the United States Chamber of Commerce's *Washington Report* observed recently.

Continuance of that greatness at present high levels depends upon business statesmanship of a kind set down by Leonard Refineries of Alma, Mich., in the foreword of its annual report to employes and stockholders for the year ending Mar. 31, 1956. It reads:

Our Creed

Leonard Refineries, Inc., recognizes the American Corporation as the fourth organization of society to achieve the status of a perpetual institution, the others being the Church, the State, and the University.

We believe that a perpetual institution has and must accept inherent responsibilities to all people.

We believe that the Good Citizenship responsibilities of the American Corporation include developing and maintaining a climate in which there can exist:

a constant search for ways to encourage greater creative knowledge and creative manpower;

a free and competitive economy in which all people may share, as workers at fair wages, as investors at a fair rate of return, and as customers paying fair prices for quality products.

MERCHANDISING PROGRAM

Concluded from page 34

training aids available; some firms specialize in training programs. Don't sell short the ingenuity and resourcefulness of your own organization.

Again we want to point out that the impetus of your merchandising activity must be from the top, down right through every level of supervision and with proper recognition of results. Some of the most effective sales work accomplished in the Bell System is by its plant forces and that's not just installers, but repairmen and test desk men as well.

The time has come when basic telephone service is just not enough to adequately serve or meet the needs of the present-day customer. We must raise our sights to a "complete home" service with additional stations (to meet the ever-growing needs of the family and in color to meet the desires of the housewife) equipped with necessary keys, bells and cords to fit the floor plan. Isn't it about time that we sell an all inclusive package that contains the kind and quantity of service necessary to meet present needs.

Our main problem is to show present and potential subscribers how to utilize telephone service fully to their profit and advantage.

We must make them aware that the service from a single telephone is inadequate to meet their needs.

We must make our service as modern as tomorrow if we are to keep abreast of the rapid forward strides being made by industry and business with automation.

Telephone service is vital to the nation's progress . . . to fulfill our obligation as an industry a comprehensive and realistic merchandising program is completely necessary. We have a real job to do but the rewards are great.

Your Merchandising Committee has a recommendation; however, it is in the form of an admonition.

Unless we aggressively pursue a dynamic telephone merchandising program we are not only short-sighted to our own industrial future, but are remiss in adequately providing a desired and vital service to the public.

Describes True Wisdom

"True wisdom is to know what is best worth knowing, and to do what is best worth doing."—HUMPHREYS.

NATIONAL ADVERTISING

Concluded from page 38

From a 12,000-station company: "My subscribers have more confidence in our company as a result of hearing about the rest of the Independent industry."

From the owner of a 4,000-station exchange: "We need to keep on advertising; there are still people who don't know what the Independent industry is!"

From a Bell System executive: "We are pleasantly surprised at this publicity by the Independent industry."

From a financial institution executive: "Today we are certainly more aware of the Independent telephone industry than ever before."

Conclusion

Now you have heard comments from the Pacific Coast. On behalf of one California company, may I say our advertising program is very worthwhile. Our national association is to be commended. Let's keep at it.

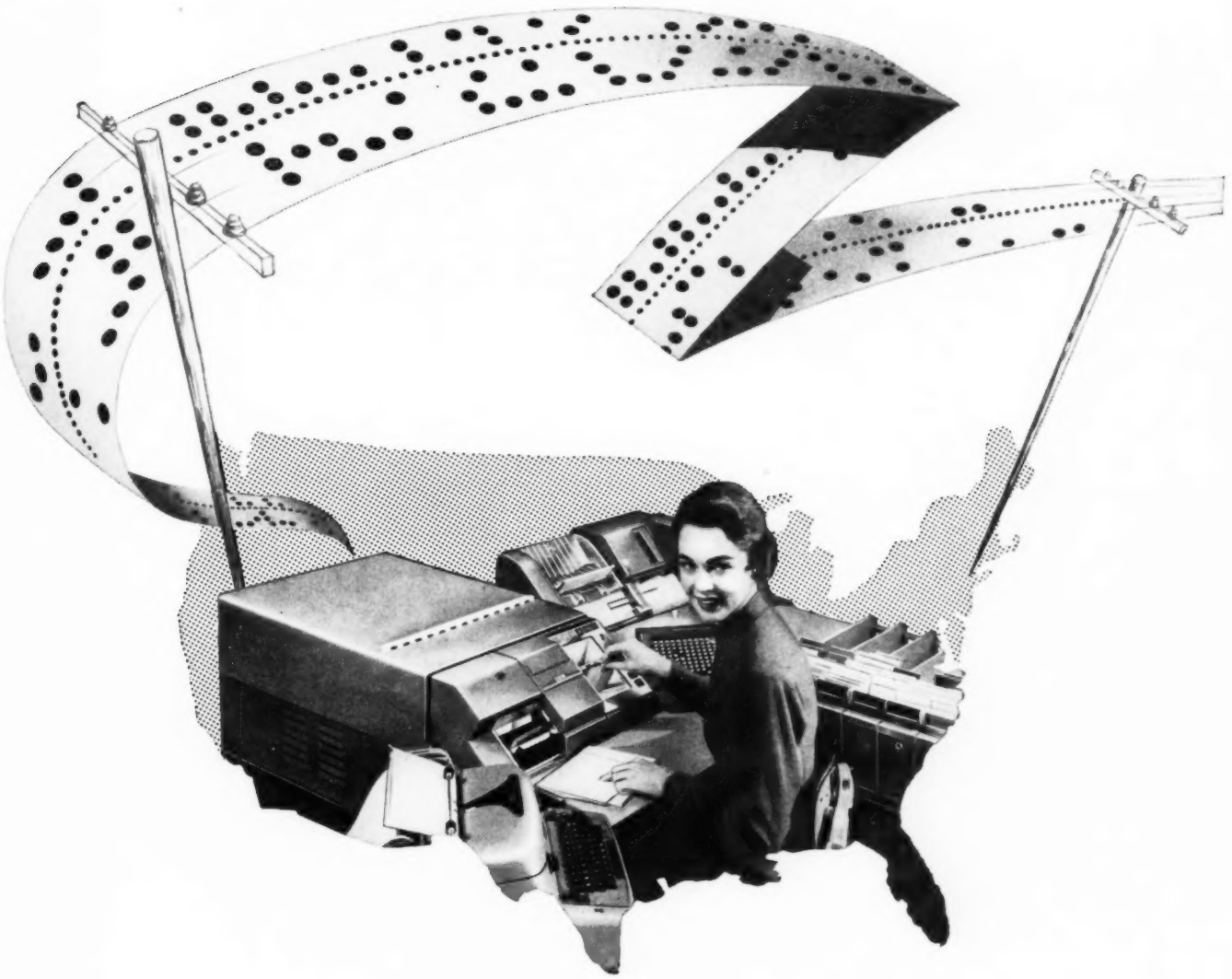
First Telephone Directory

About 1878 the first telephone directory published in the country was in New Haven, Conn. This was merely a classified list of customers. In those days a person made a call by merely giving the operator the desired party's name. There were no telephone numbers.

XUM

AUTOMATIC TAPE PREPARATION!

. . . another **IBM** service



IBM CARDATYPE® punches 5-channel tape and produces accounting documents at the same time!

In data transmission, much time and cost can be saved with the new IBM CARDATYPE.

Operated by a typist, CARDATYPE does Order Writing, Billing, Pricing and provides quick and precise inventory controls economically. It also handles other record-keeping applications and, *at the same time,* prepares a compatible 5-channel tape capable of transmitting all data over standard communications lines to distant points . . . with assured accuracy!

For communications companies and their customers, this exclusive new IBM development means tighter *centralized* control of *decentralized operations.*

Get the complete facts today. Write: COMMUNICATIONS DEPARTMENT A56, International Business Machines Corporation, 590 Madison Avenue, New York 22, N. Y.

DATA PROCESSING • ELECTRIC TYPEWRITERS • TIME EQUIPMENT • MILITARY PRODUCTS

IBM® DATA PROCESSING

NEW ERA IN COMMUNICATIONS

Continued from page 62

units which resemble and function in some respects like a crossbar switch.

The Years Ahead

The tremendous impact of electronics on our future, both as telephone people and individuals, is almost beyond our comprehension. It has been predicted that within 10 years a major share of the electronics business will come from distinctly new and revolutionary products which are now not even in the drawing board stage.

Undoubtedly in this vast anticipated flood of new electronic equipment and techniques will be many which will apply to the telephone business. Communication will in the years ahead become truly universal. Long distance, which to many prior to World War II, was considered a sort of emergency or luxury service, is now used almost as freely by many business men as is local service.

Improved and lower priced mobile selective signaling radio equipment is inevitable and will result in more extensive use of this final link in our communication chain. Equipment elements in future switchboards will function in millionths of a second instead of thousandths of a second as is now true of mechanical systems.

Personal paging—the system whereby individuals can be called to a telephone by virtue of a tiny radio receiver no larger than a package of cigarettes which they carry in their coat pockets is now available.

The use of standard telephone lines to transmit business and engineering data between cities at equivalent word and pulse speeds much higher than present Teletypewriter service is already approaching a practical form.

Hollow tube wave guide transmission may obsolete present coaxial cable and wire as a single pair of simple tubular wave guides could carry thousands of voice or equivalent voice circuits between major cities.

The great scientific era now beginning to unfold should be a challenge to all Independent telephone plant men. We must become thoroughly familiar with the new tools and techniques which will soon be commonplace in our industry. A knowledge of Ohm's law and the ability to find one's way around a direct current circuit diagram will no longer suffice.

In the not too distant future, we will be dealing with electronic circuits which will require a sound engineering knowledge of advanced alternating current theory and of the operating characteristics of many new components and of circuitry far different in concept and execution than the circuits we know today. We must embark on a program of self-education so we will be ready for these new developments as they emerge from the laboratory.

So rapid is the accelerated pace of our scientific progress in the electronic and communication arts that even as we gather here to review the year's accomplishments and to discuss the future, much of what we now consider new and novel, will soon be old and commonplace.

In thousands of laboratories, both small and large, throughout the land eager engineers and physicists are working day and night on electronic research projects whose end results could be of such significance as to change even our way of life.

So, until we meet again, let me suggest—"Keep a sharp eye on electronics, it's in your future."

Appendix

Electronic Switching Systems

By Paul Henson

CONSIDERABLE attention is being focused on the problem faced by telephone company managements in planning their current operations so that they will be compatible with anticipated future developments. Such planning should, of course, be approached realistically with economics and transitional problems controlling. In the light of these two factors, perhaps the development of electronic central office switching equipment will have the greatest impact on the telephone industry of any single development on the horizon today. Therefore, a brief review of the background and possibilities of electronic switching is pertinent at this time.

Dr. M. J. Kelly of the Bell Laboratories refers to electronic switching as "a revolution in switching technology." The first commercial electronic switchboard publicly announced in this country was manufactured by the Stromberg-Carlson Co. and delivered to the U. S. Navy early this year. The Bell System has released information to the effect that the first all-electronic switchboard of Western Electric design and manufacture is scheduled for installation at Morris, Ill., in 1958.

It might be opportune at this point to define what is meant by an electronic exchange. Parts of present-day electromechanical systems may be replaced by electronic devices and components, but this would not qualify as an electronic exchange. Conversely, exchanges which are otherwise completely electronic might well be controlled by mechanical dials. While they are not, therefore, completely electronic, they are certainly intended to be included by the term "electronic." Any definition of the term is, therefore, bound to be arbitrary to some degree. One author has suggested that an exchange is electronic if the connector switches are electronic. This is a practical definition and will certainly suffice for this cursory review.

The major advantages of electronic switching devices would seem to be high speed and sensitivity. While life expectancy, reliability and flexibility are still factors to be determined, it appears that research and development programs will soon make possible the listing of these considerations as definite advantages of electronic switching. Despite the significant functional advantages of electronics, as contrasted with electromechanical switching, the practical application to telephone switching had to await the advent of the solid-state electronic devices, notably the transistor. The reasons for this delay are found in the comparative size of semi-conductors and vacuum tubes, the relative power consumption, attendant heat dissipation, reliability, life expectancy and economic considerations.

Basic Operation of Electronic Switching

Before the effect of this development can be evaluated, we should have an appreciation of the operational characteristics of an electronic switchboard as contrasted to the more familiar electromechanical systems. The basic components of electronic switching are transistors and diodes as opposed to electromechanical relays and mechanical switches in current systems. The transistor, a now-familiar element, is a small crystal of germanium, silicon or other semi-conducting material capable of amplifying a wide range of frequencies, conducting or blocking electrical impulses, serving as a source of generation for electronic signals and many other functions commonly performed by vacuum tubes.

A diode is a similar device using similar materials, but serves only as a one-way conductor. The diode is a non-linear element with a high ratio of non-conduction ("reverse") resistance to conduction ("forward") resistance, the actual magnitude of which depends upon the voltage applied to the element.

(Please turn to page 112)

NUMBER 17
Toll grade. These insulators are employed for all exchange circuits and for all toll and trunk circuits that do not exceed ten miles.

Dependable ...in emergencies

When they're on the line, you can *depend* on their strength and uniform high quality.

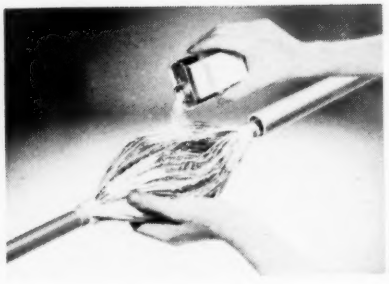
When you order you can *depend* on prompt deliveries of what you need . . . when you need it.

Since 1870, when Robert Hemingray began mass production of screw-thread insulators, Hemingray has pioneered most of the insulator developments to keep pace with the requirements of the communication systems of the world.

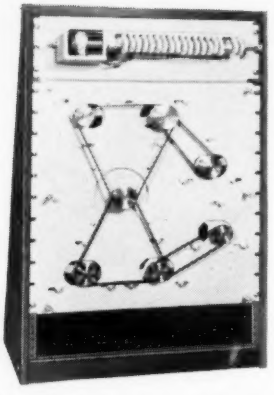
Today, as always, Hemingrays are world standard for quality, and most of the overhead telegraph and telephone lines of the world are carried on *dependable* Hemingray Glass insulators. They are a product of Kimble Glass Company, subsidiary of Owens-Illinois, Toledo 1, Ohio.

HEMINGRAY INSULATORS
AN (O) PRODUCT

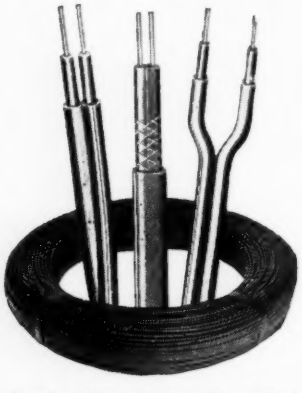
OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO



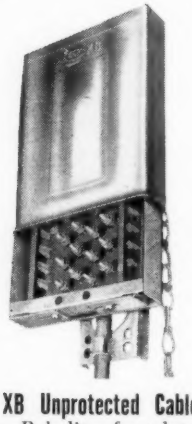
Simple and Effective! The quick, easy positive way to dry splices in lead-covered cable is to sprinkle Drierite Dessicant granules in among the conductors. This W. A. HAMMOND DRIERITE COMPANY product will not harm the sheath, conductors, or insulation.



25 Watt Multi-Frequency Ringing Panel. Available for stand-by operation. May be equipped with tone generator and motor-driven interrupter. 19″ or 23″ rack mounting. HOLTZER-CABOT TELEPHONE EQUIPMENT DIVISION, National Pneumatic Co., Inc.



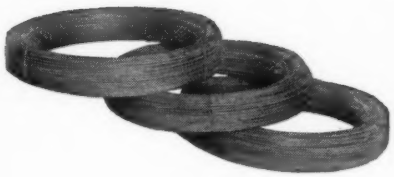
Long Service Life and Low Plant Costs go hand in hand with the installation of ENDURPRENE — The Neoprene Drop Wire available in both Copperweld and Bronze. This flexible and easy-to-handle wire is made by GENERAL INSULATED WIRE WORKS, INC.



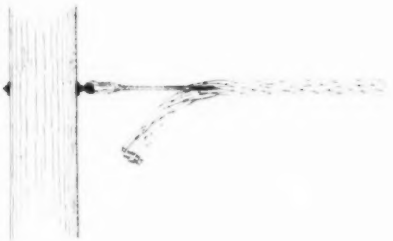
The Type XB Unprotected Cable Terminal features a Bakelite faceplate and insulating fanning strip molded in one piece, with Everdur studs positioned for easy wiring. Available in 6, 11, 16 and 26 pair size, with or without cable stub. COOK ELECTRIC COMPANY.

A GALLERY OF MASTERPIECES OF FINE LINE EQUIPMENT

XUM



Save Three Ways . . . on materials, man-hours and maintenance with INDIANA STEEL & WIRE COMPANY'S Crapo HTL-85 and HTL-135 Line Wire. Galvanized by the famous Crapo Galvanizing process: protected with heavy, ductile coating of zinc.



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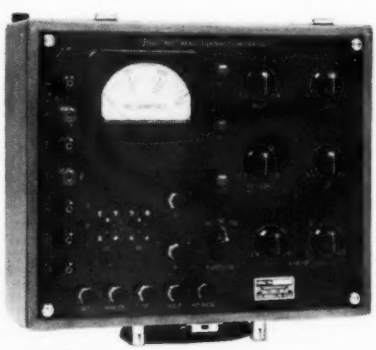

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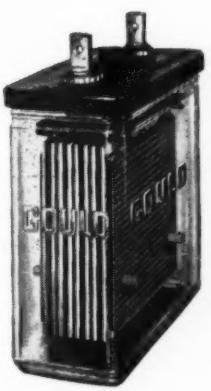

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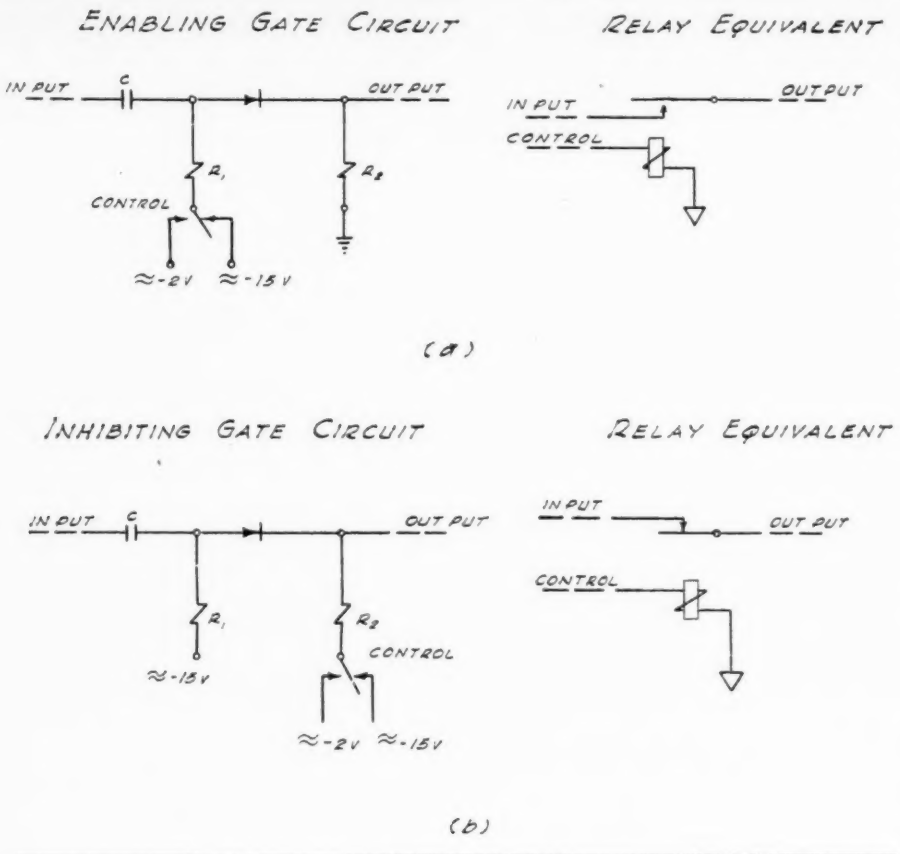

Fig. 1. Diode gates and relay equivalents.

Electronic tubes and the semi-conconductor elements, varistors, diodes and transistors, can be utilized as two-valued devices and, hence, like electromechanical relays, are suitable for performing switching functions. The various electronic tubes, both vacuum and gas-filled, are essentially voltage sensitive devices capable of being placed in a conducting or non-conducting state by control signals introduced at a low energy level.

Varistors and transistors, on the other hand, are primarily current sensitive elements which, again, can be controlled by low energy levels. Varistors and diodes offer either a low or a high resistance to current flow, depending upon voltage polarity, while transistors incorporate current amplification. On a comparative basis, vacuum and gas tubes operate at higher voltage levels, and the semi-conductor elements at lower voltage levels.

Electronic Circuit Design

Electronic circuit design necessarily must follow two main trends. One is the utilization of specific characteristics of electronic apparatus to perform particular switching functions. The other is to use electronic elements in the same sense and manner that relays are used and thereby interconnect the elements in patterns that satisfy the logical requirements of the problem. By combining these basic concepts, we can make an attempt at some comparative circuitry.

A common property associated with switching functions is that of definiteness of state. The condition of the function is either "off" or "on." Switches are either open or closed; relays are operated or not; tubes are in cut-off or overload; doors are open or closed, etc. This is a common property regardless of instrumentalities and devices. Further, this common property permits a direct comparison between two or more switching systems without reference to the individual and sequential steps taken to effect the same end result, namely, the selective interconnection of subscriber facilities.

The basic comparison between electronic and electromechanical switching is the manner in which a signaling or control path is opened and closed. The control element is, in effect, a switch which is either opened or closed to signals passing along a lead, depending upon the conditions controlling the switch. In electromechanical switching, this function is performed by the relay and its associated contacts. In electronic switching, this switch element is called a "gate."

A gate circuit may operate in a number of different ways. It may act to change the impedance of the path carrying signals through the gate, or it may act as an amplifier which provides zero gain where the gate is closed and appreciable gain when the gate is open. In most cases, a gate circuit is designed to operate on a path carrying positive or negative pulse signals rather than on paths carrying ac signals. Many gates have non-linear characteristics which make them unsuitable for ac transmission.

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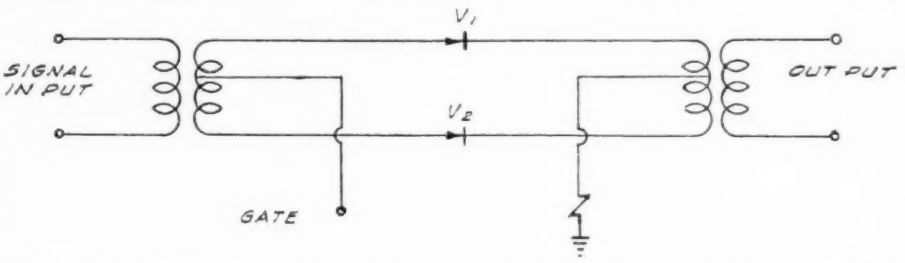

Fig. 2. Varistors arranged in gate circuit for voice-frequency signals.

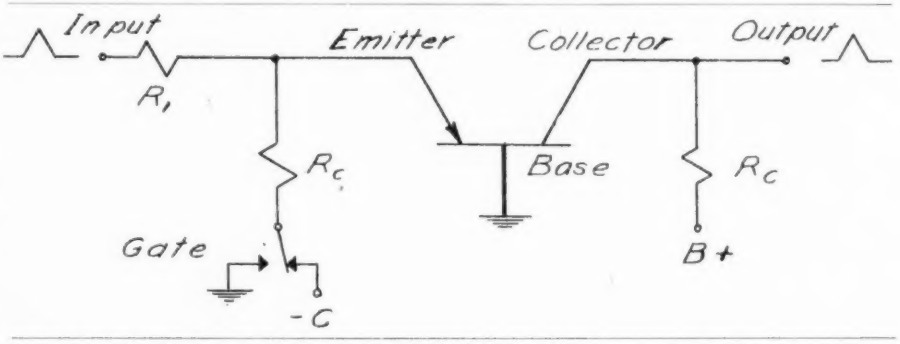

Fig. 3. Transistor gate circuit.

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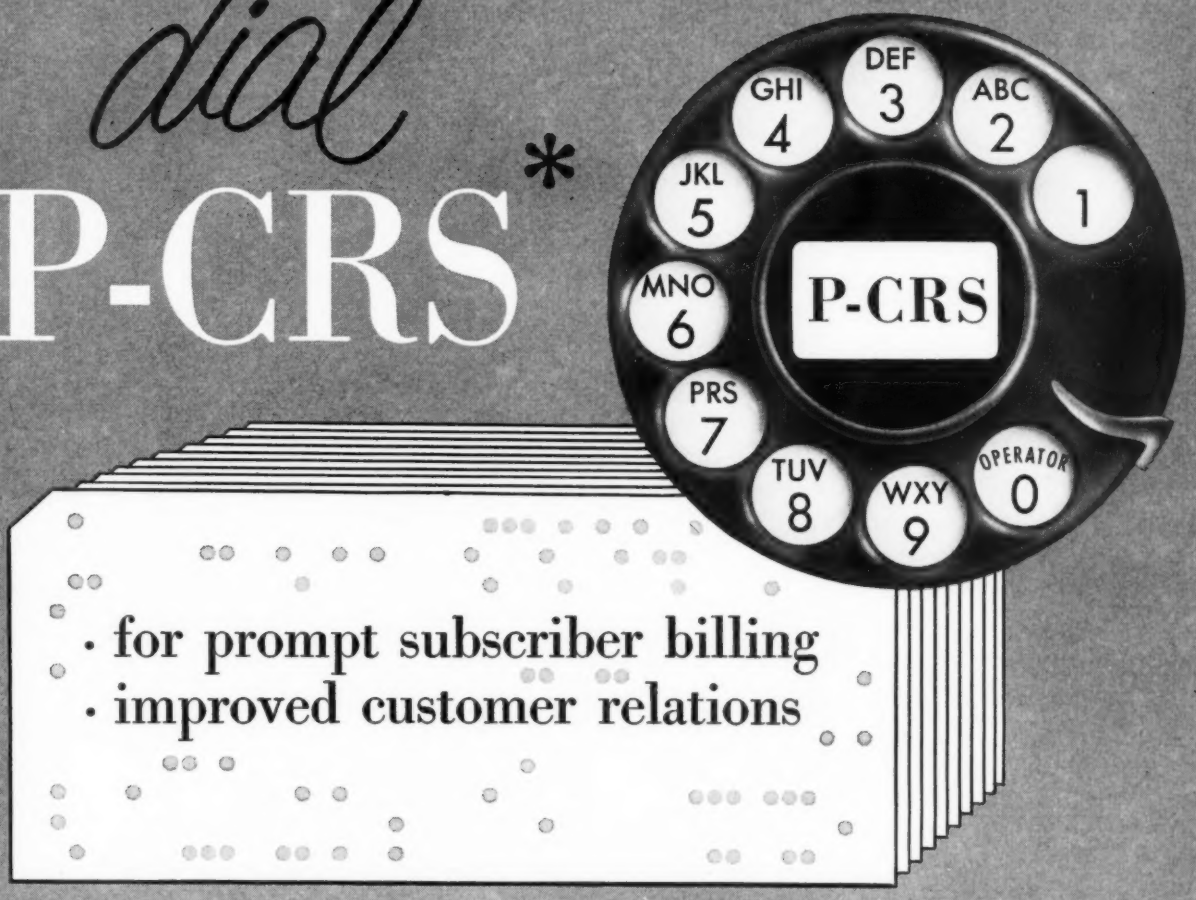

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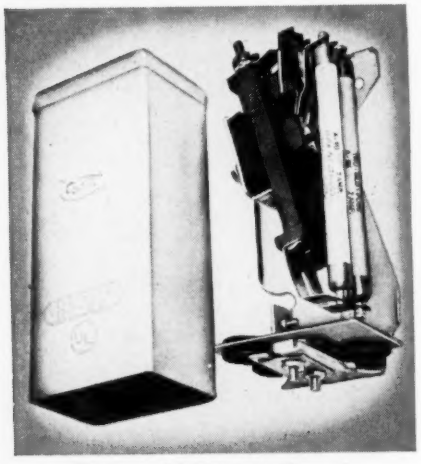

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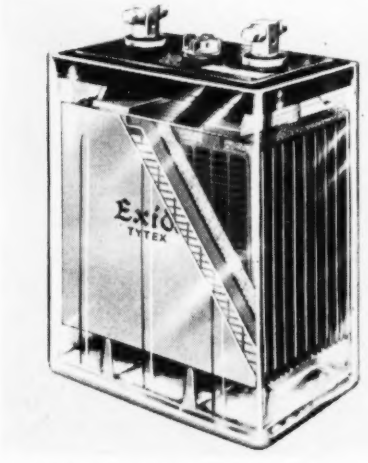

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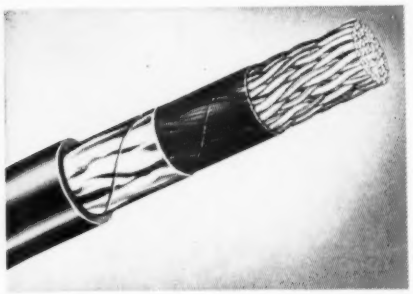

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Elementary Gating Circuits

Elementary gate circuits employing semi-conductor diodes are shown in *Fig. 1.* By using the two resistors, one condenser and a silicon junction diode in various configurations, the equivalents of opened or closed contacts in relay circuits are obtained. These configurations are known respectively as enabling and inhibiting gates and are shown with their relay equivalents in *Figs. 1 (a)* and *1 (b).*

For elementary analysis, we can assume that these elements are a part of a high speed signaling circuit operated on a pulse basis. We can further assume that each pulse is positive and approximately 10 volts in amplitude. In the enabling gate, the diode is normally back biased (approximately 15 volts) by more than the pulse voltage and pulses are not transmitted. To enable or open the gate, the back bias is reduced to a small reverse voltage which can be readily overcome by the signal amplitude of the pulse. The pulse thereby forward biases the diode and is transmitted to the output.

The inhibiting gate has its diode normally in the conducting state so that a pulse is transmitted from input to output. When the bias is changed by the control, the diode is heavily back biased so that the pulse amplitude is insufficient to overcome this bias and the pulse is blocked or inhibited.

A simple, though not commonly used, gate circuit based on dc control of small-signal ac diode resistance is shown in *Fig. 2.* For discussion purposes, semiconductor varistors can be used as the gating elements. When the gate voltage is negative, varistors V_1 and V_2 are biased in the reverse direction. The varistor characteristics are such that the small-signal (small in comparison to the magnitude of dc voltage across the varistor) ac resistance is high when dc current flows through the varistor in the reverse direction, and low for dc current in the forward direction. Therefore, for a negative gate voltage the series resistance is high to the signal, and for a positive gate voltage, the converse is true.

A transistor may also be used for gating purposes where signal gain is desirable. The operation of a transistor in gate circuit, as in *Fig. 3,* is very similar to that of a vacuum tube triode. With the gate voltage sufficiently negative, the input signal causes an insignificant change in collector current and produces zero gain. When the gate voltage is changed to ground potential, an input signal would cause an appreciable change in collector current, and, hence, the input signal is amplified by the transistor action and appears on the output lead.

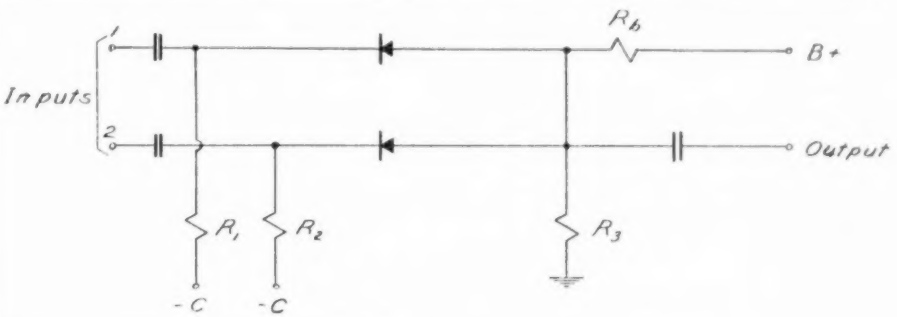


Fig. 4. A diode *and* gate.

In most relay circuits, the state, at a given instant, of a particular relay (operated or unoperated) or lead (activated or nonactivated) depends upon the combination of states of other relays or leads at that instant. This is also true of electronic control circuits in that the state of some one element depends upon the state of a number of other elements. These circuits are somewhat similar to the contact net-

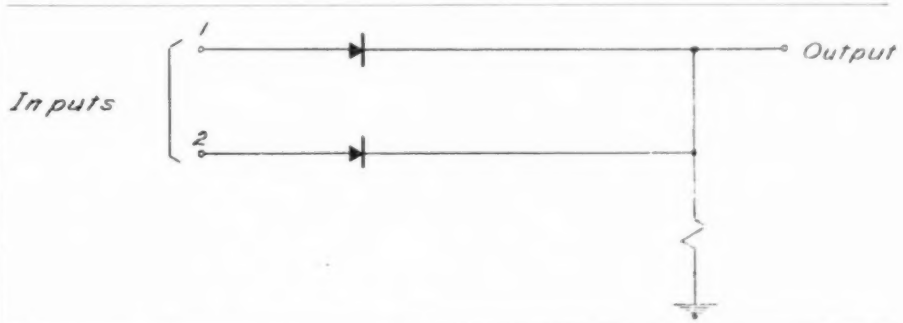


Fig. 5. A diode *or* gate.

works constructed on a group of relays, allowing these relays to control the action of certain other relays.

Electronic Control Circuits

There are two basic forms of these electronic control circuits: the "and" circuit and the "or" circuit. In both forms, a number of input terminals and a single output terminal are provided. For the "and" circuit, the output terminal is activated only when all input terminals are activated. For the "or" circuit, the output terminal is activated if any input terminal is activated. Therefore, the "and" circuit is analogous to a relay circuit in which input lead is connected to a relay winding, and the output lead is controlled by a series chain of make-contacts on the relays. Likewise, the "or" circuit corresponds to a relay circuit in which the output lead is controlled by make-contacts placed in parallel.

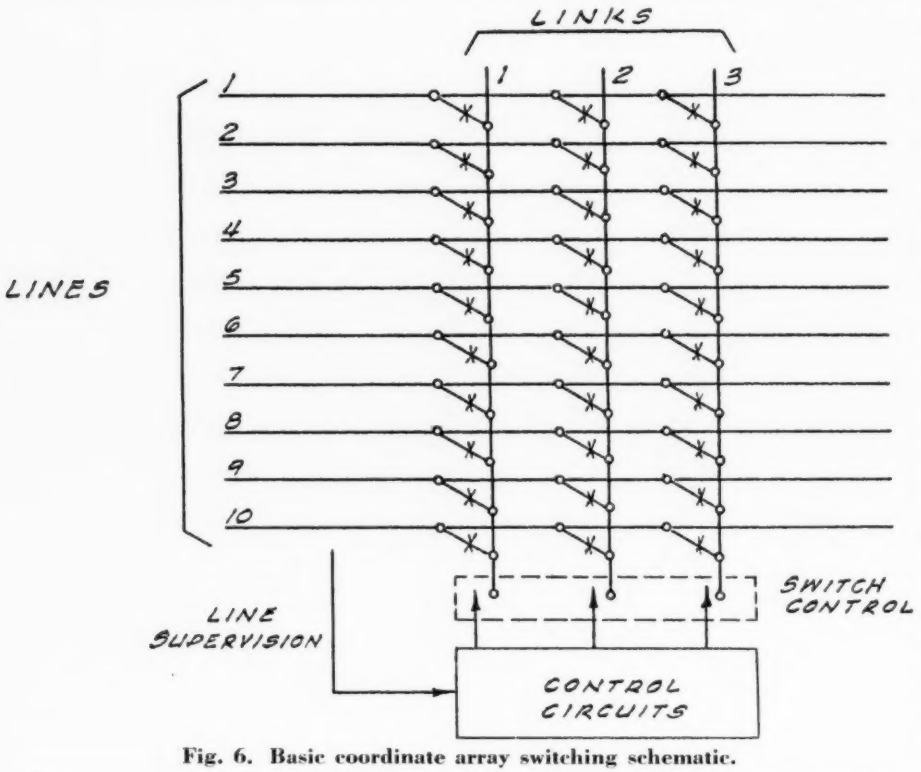


Fig. 6. Basic coordinate array switching schematic.

A typical "and" circuit employing semiconductor diodes is shown in *Fig. 4*. The biases are so adjusted that, in the normal condition, the output voltage is zero, the diodes are conducting and the bias current from source B flows through the diodes and the control resistors 1 and 2. In this case, when a positive pulse is impressed at one of the control inputs, the corresponding diode is cut off and the bias current ceases to flow in it. However, there is very little change resulting at the output because the bias can still flow in the second, low impedance control diode and resistance. If a second pulse is simultaneously impressed on the second control input, the second diode is also cut off and the bias current is forced to flow in the load, R_3, producing an output pulse of magnitude determined by the values of the bias current and the load resistance.

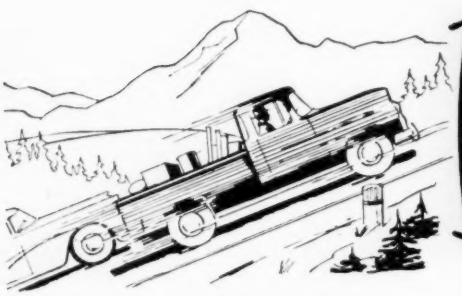
A schematic of a typical "or" circuit is shown in *Fig. 5*. When a positive pulse is impressed on either of the input terminals, it drives the corresponding diode conducting and the pulse appears at the output. The signal pulse drives the other diode non-conducting, blocking that path.

By combination and utilization of these basic characteristics, comparable electronic circuits can be devised to perform functions of lock-in, lock-out, information retention, pulse control and other applications required in modern switching.

System Applications

From the foregoing, it can be seen that transistors and diodes can readily be adapted as basic building blocks in the design of switching systems. The problem of the form which an electronic exchange might take is not adequately solved simply by the substitution of electronic switches for electromechanical ones in existing systems.

The difference between a switch or relay closing a metallic path and a transistor or diode completing an electronic path or connection can be considerable. Likewise, the operating speed of electronic switches makes possible systems and methods which are impractical with slower-operating mechanical devices.



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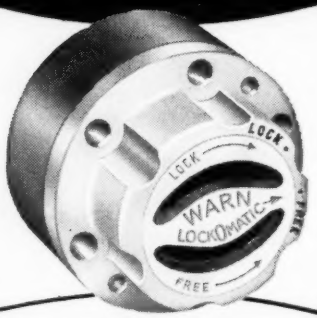

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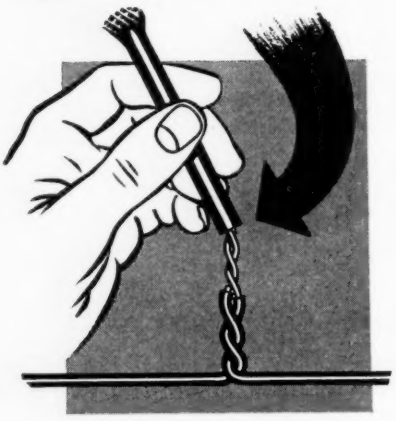

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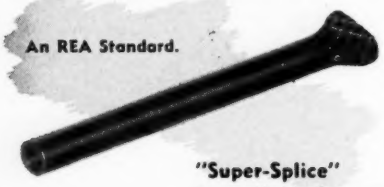

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This is to suggest that the design of certain parts of an electronic switching system should be approached by basic principles rather than by analogy with existing exchanges. A basic requirement of any switching system can be used to illustrate this point.

Said basic requirement is the ability to selectively interconnect transmission and signal circuits. With a relatively few number of lines having low traffic requirements, it is feasible to simulate mechanical switching systems on a multiplied crosspoint basis. However, for larger exchanges, multiplex type switching appears to be more attractive. Multiplex type switching of supervisory and/or voice frequency circuits can take the form of time-division multiplex, frequency-division multiplex or other types which are more frequently associated with carrier-frequency telephony methods.

One system under development employs the principle of time-division multiplex switching to increase the traffic capacity of the component circuits by scanning and transmitting the "information" on a large group of control circuits over a single output conductor. In this system, the voice frequency intelligence signals are interconnected through a coordinate array of bi-directional switches. Systems of this general type have been called "Bipath" systems since supervisory and signal paths are separate from voice frequency paths.

Fig. 6 is a schematic diagram of an elementary Bipath system having switch points that are controlled by action from the divorced supervisory signal control circuit. A typical connection is accomplished by closing any two crosspoints in one of the vertical columns, completing a path between the corresponding terminals. Other simultaneous connections can then be established between any given terminals through closure of their crosspoints within a vertical column. It is obvious how this basic system can be expanded to larger proportions through the use of additional lines and links, and with additional switching stages.

The coordinate array switching schematic merely indicates that some form of switch with external control is required to connect given crosspoints. The switch could, of course, be an electromechanical relay. Silicon junction diodes have also been used in this application, but excessive circuitry is required inasmuch as they do not have an isolated control terminal. Recent designs have therefore utilized a "bilateral" transistor as the crosspoint element switch. The bilateral transistor gains its name from the fact that the symmetrical junction units serve equally well as collector or emitter. A typical control arrangement for the bilateral transistor as a crosspoint element is shown in *Fig. 7*.

From these basic "system" considerations, it can be seen that the fundamental requirements of connection, selection and supervisory control may be accomplished in a manner which is quite foreign to those commonly employed in electromechanical systems. Just what forms will ultimately be developed for general use is difficult to predict. However, it appears safe to assume that the inherent speed of electronic components will dictate the use of circuitry design based on high frequency techniques.

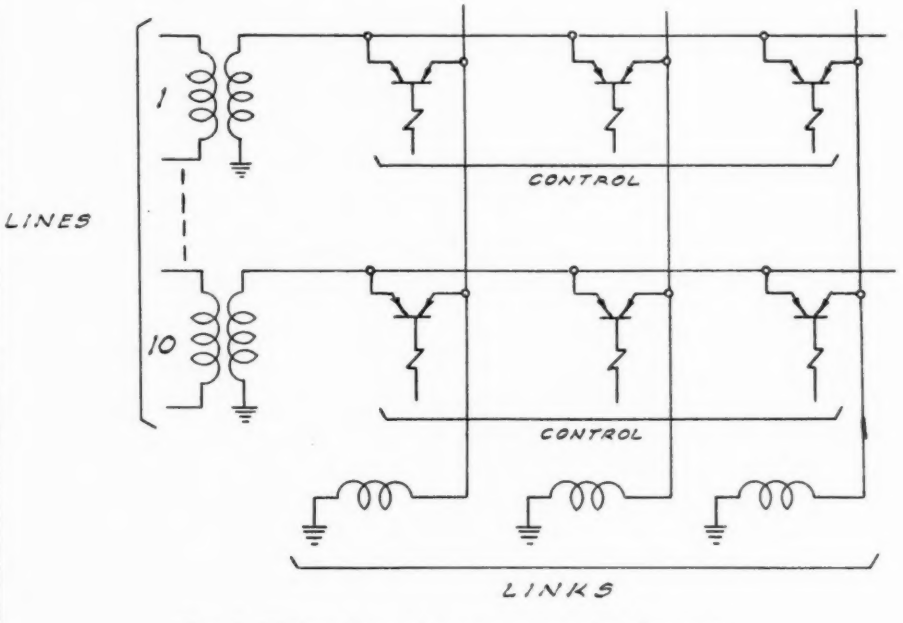


Fig. 7. Bilateral transistors as crosspoint elements.

Conclusion

From these simple examples of electronic circuitry and some knowledge of their counterparts in electromechanical circuits, one can conclude that it is possible to perform most, if not all, switching functions with electronic elements. One can also visualize that a large number of electronic elements will be required to accomplish the complex functions demanded of modern switching systems. This is borne out by the fact that some 4,500 transistors and 5,000 diodes were used in the construction of the 100-line, 15-link system built for the U. S. Navy. When the capacitors, resistances and control networks for the diodes and transistors are added, a sizeable number of component parts is involved.

This leads to the obvious conclusion that work is yet to be done in circuit design to reduce the number of elements required and in manufacturing techniques to reduce the cost of individual components. A large majority of the engineering and management personnel involved in developmental work concede that this task can be accomplished. If it is a matter of a few years until such equipment can be economically installed as central office switching apparatus, the effect would be significant.

Because of the compactness and weight of electronic devices, it is possible that space and weight requirements could be reduced about 80 per cent. Also, the power consumption could be greatly reduced since the power required to close a relay contact is in the order of 100:1 for that of a corresponding function when performed by a transistor or semiconductor diode. The absence of moving parts eliminates problems caused by dust, wear, corrosion and other factors which affect present-day systems. Coupled with the rugged nature and theoretically infinite service life of semiconductor devices, the electronic system could be virtually free of maintenance and failure.

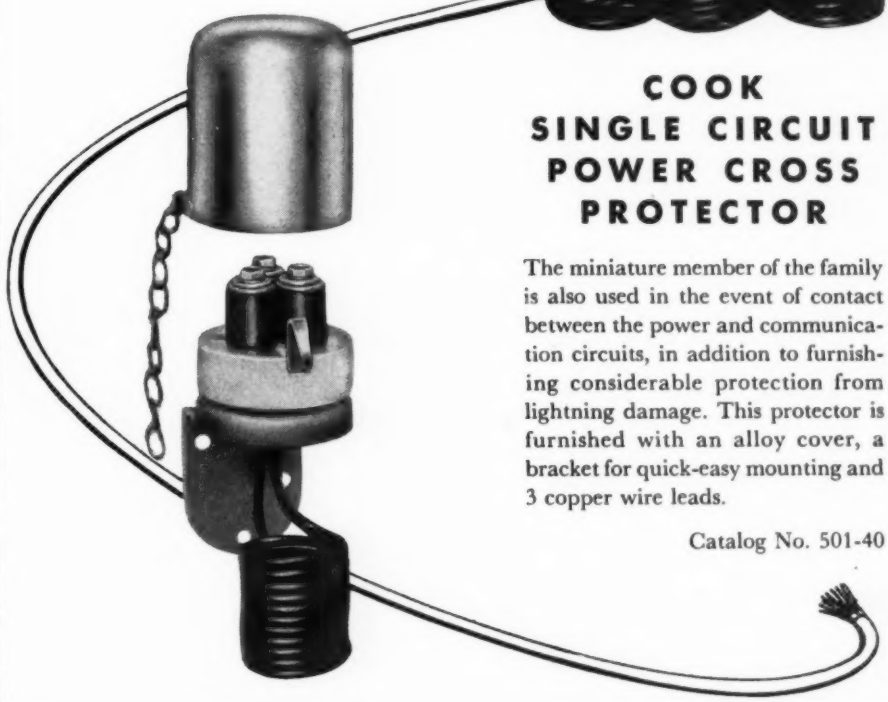
This is all well within the realm of possibility and not just wishful thinking. Just when the above-described "revolution in switching technology" will be in evidence in Independent company switchrooms is difficult to state. Again choosing the words of Dr. Kelly, technology may be undergoing a revolution, but the impact will be experienced as "evolution and not revolution." A costly, adequate, long-lived plant will not become obsolete over night. Its retirement, however, will be hastened and growth plant, after perhaps a period of five years, will be greatly affected by solid state electronics."

Rural Protection
MEANS COOK PROTECTION WITH SUTTLE SERVICE

COOK 5 CIRCUIT POWER CROSS PROTECTOR

This heavy duty arrester has been developed for telephone protection when there is a joint occupancy of poles by communication and power circuits. It provides a single assembly for 5 circuits requiring only one ground wire. The No. 10 copper wire coiled pigtail leads are precut to the correct lengths for convenient installation on a 10B cross arm.

Catalog No. 501-50



COOK SINGLE CIRCUIT POWER CROSS PROTECTOR

The miniature member of the family is also used in the event of contact between the power and communication circuits, in addition to furnishing considerable protection from lightning damage. This protector is furnished with an alloy cover, a bracket for quick-easy mounting and 3 copper wire leads.

Catalog No. 501-40

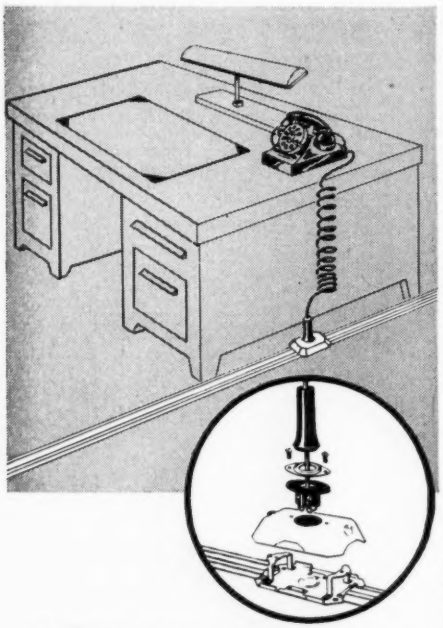
SUTTLE
EQUIPMENT COMPANY
LAWRENCEVILLE ILLINOIS

New

PANCAKE FITTING

permits free desk movement

. . . accommodates the 47-B Connecting Block in floor outlet!



- Reduce maintenance and repair costs
- Protect conductors for longer life

Individual communications wiring to office desks is made *easier* and maintenance and repair costs cut to a *minimum* by this new Wiremold 1546T fitting. It accepts the 47B Connecting Block in the floor outlet which allows the telephone set mounting cord to terminate in the connecting block. No physical attachment of apparatus to the desk should normally be required.

Just *one more reason* why Pancake is the *best way* to carry communications wiring over-floor to the point of use.

The WIREMOLD Company
HARTFORD 10, CONNECTICUT

IMPLICATIONS OF ATOMIC ENERGY

Continued from page 31

values. The remaining tests are concerned with whether such food could possibly be harmful in any way. No one has yet been able to present any good reason why it should be.

It is obvious that the economic impact could be of considerable magnitude to the entire food processing industry. If we can reduce perishability to the large degree believed possible, there is no doubt but that every food processor and handler from the farmer to the housewife will feel the economic effect and will find it advantageous to change some of his operating procedures.

Radioactive isotopes have been of great value in medical research. While the principal aim of this research has been the increase of knowledge with respect to the human body a by-product has been the development of means for diagnosis and treatment for various types of ailments.

Economic impact will be felt in the field of process control. Developments in this area are moving so fast that those companies which have not launched suitable programs for applying radioactive isotopes to process control will soon find themselves falling behind their competitors.

The advent of accurate chemical analysis brought about a great advance in the processing and fabrication of all forms of raw material. The accuracy mark of chemical analysis is about one part in a million. The limit of accuracy through radioactive isotope applications is being improved continuously. It is now many times that possible through chemistry.

In the manufacture of paper, one finds a good example of continuous process control. The thickness of the paper is continuously measured, by means of gauges utilizing the radiation from radioactive isotopes. These measurements in turn actuate the adjustment of the paper rolls to control the thickness. Similar applications lie in the field of steels, rubber, plastics and similar materials. There is no sampling, no marking of the material and no destructive testing required.

It is not too hard to imagine the potential operational savings in the paper industry. Nuclear energy and its by-products have also proved to be a profitable tool in the movement of liquids through pipelines.

In pipelines, radioactive substances are used to determine the point of separation of different types of fluids being sent through the lines. This has long been economically sound.

Using radioactive materials as tracers has been applied in many fields, all the way from agricultural research to testing soaps and determining wear on engine parts.

I have mentioned a few of the advances possible through nuclear energy that will have economic impact upon our way of life. They will all contribute to making our already high standard of living an even better way of life. The annual savings achieved through their use in various industries are estimated at over 100 million dollars per year and it is thought that within five years this saving may reach a billion dollars per annum.

Many of you are more or less familiar with the latest progress reports made on atomic power plants and reactor stations. According to the Atomic Energy Commission the Duquesne Power plant at Shippingport, Pa., will supply power next year. They also say that, between 1957 and 1962, 18 of 30 plants scheduled for civilian use will be in operation, with a generating capacity of approximately 1.2 million electrical kilowatts—a sufficient capacity for the needs of, say, Rhode Island and New Hampshire. It is interesting to note that, of the 18 plants, the AEC stated that "six will be built by industry without depending upon the government for any direct financial subsidy."

A total of 82 reactors have been built in this country and another 127 more are under construction or planned. About a third of all the reactors built and planned will be of the power-producing types. Most of the other reactors will be for experimental use, with a substantial number allotted as military power plants.

I am sure you realize that the military reactors, in addition to serving as important defense tools, also provide knowledge to aid in developing power plants for civil use.

When we consider the impact of the nuclear age, we must view the period in terms of the cumulative effects of the great scientific developments, which in the minds of most of us is symbolized by the greatest development of all—that in the field of nuclear energy. But, the period as a whole includes the enormous advances in chemistry, physics and other sciences and in fact on everything bearing on our industrial life.

It is against a backdrop of these

XUM

great dimensions that I have tried to indicate to you the impact on our world, our nation, and ourselves, in the nuclear age.

To summarize—just what do the implications of all of this activity in the nuclear energy field mean to us in terms of economics?

It should help us to keep our leadership in the markets of the world. If we can keep up our export markets we need have less fear of overproduction and excessive surpluses that would shut our plants and reduce our working forces. So long as we can produce and sell goods at prices our own people and our international neighbors can afford, we will be able to maintain an ever higher standard of living.

Future expansion of any business that needs power will not be checked because of power shortage. It may be uneconomical in the immediate future for some types of industry to use atom-plant-produced electricity, but it will not be too long before areas of the country which have been held back by lack of accessibility to power, or low-cost power, can join in the parade of industrial progress that has made us a great nation.

But, let us not forget ever the great good which has already come from atomic energy in the ending of World War II, and in the American lives saved thereby. And, let us not forget that it has enabled us to survive the cold war years since then without risk of another world war, and that, because of atomic energy, this has been accomplished without impairing any of our individual or national liberties. And, finally, let us not forget that, if our forces in Korea had been permitted to use atomic weapons, that war would have been ended promptly and victoriously and Asia would not be so fearful of Red China.

LINE CONCENTRATORS

Continued from page 41

But, more important, perhaps, was the fact that the use of the concentrator placed us in a position to "wait and see." Additional savings might be realized if the anticipated growth did not materialize to require the additional cable in two years.

In this instance, the concentrator unit in the field was applied at a point on the feeder cable where a cross-box was located, some 2 miles from the central office. The 100-pair cable towards the central office was 97 per cent filled and the distribution cable beyond the cross-box had a 33 per cent fill. The application of the concentrator initially involved 80 subscribers on 37 lines and resulted in a total of 29 vacant pairs

CONTINUING IMPROVEMENTS IN THE

Murphy "ONE-MAN" Cable Tester

MODEL TTB

MODEL CMUW

ONE MAN WORKING ALONE

Can Now Identify Non-Working Cable Pairs 3 times faster than 2 men working together.

DISTANCE: 2 feet to 40 miles

The *Combination Tag-and-Terminating Board*, showing cable pairs properly connected. Tips — Horizontally, RINGS—Vertically.

The NEW MODEL CMUW
The new weatherproof gasket sealed case is now a part of every MODEL C shipped.

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"YANKEE" TOOLS for Telephone Service

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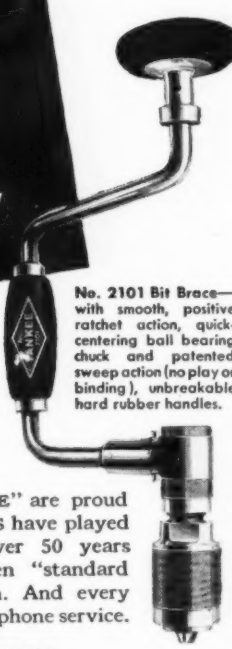

No. 2101 Bit Brace—with smooth, positive ratchet action, quick-centering ball bearing chuck and patented sweep action (no play or binding), unbreakable hard rubber handles.

No. 2150 Bit Extension—bits will not loosen or jam in socket. Takes large range of bits. Chromium plated.

No. 130A Spiral Driver—the driver that *turns* while you *push*. Easy to operate, powerful, it tightens or loosens screws and small nuts quickly and easily.

No. 41 Push Drill ("100 PLUS") all-metal, highly finished. Magazine handle holds eight drills, from 1/16" to 11/64".

In the enviable reputation for good service that the telephone companies have earned, the contribution made by linemen and maintenance men is outstanding. And we at "YANKEE" are proud of the part "YANKEE" TOOLS have played in this achievement. For over 50 years "YANKEE" TOOLS have been "standard equipment" with service men. And every year more and more go into telephone service.

THE TOOL BOX OF THE WORLD

STANLEY

YANKEE TOOLS
Division of Stanley Tools
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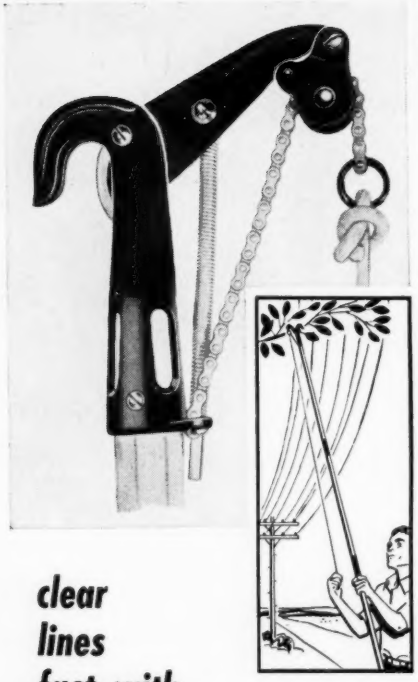


clear lines fast with...

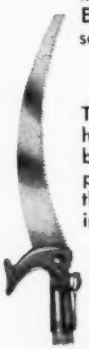
SEYMOUR SMITH
"Telephone" Tree Pruner

Here's the standard, the choice of the utility industry for years. Powerful action to cut cleanly—tough and almost unbreakable—easy to handle. No. 12 Pruner Head has 1½" cutting capacity. The lighter, No. 11, handles up to 1" branches. Both are malleable iron castings with tempered steel cutting blade.

Poles (18 ft. 3 sections) are of selected spruce with positive locking, seamless aluminum, telescoping ferrule joints.

FAST CUTTING PRUNING SAWS

Designed for fast, easy cutting—large, deep teeth, finest Swedish charcoal steel, streamlined, laminated hardwood handles. Every model you need up to chain saw work.



No. 20 POLE SAW HEAD

Tough aluminum head with large hook and outside horn for pushing branches, raising wires, etc. Also paint brush holder with wire clamp that holds brush securely. Fast-cuting 16" blade. Poles available.

FREE: Send for Seymour Smith catalog pages on tools for utilities. Keep them on file for easy reference.

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Since 1850

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from the cross-box to the central office. At the calling rates and holding times experienced in this exchange, we expect that 12 additional lines may be applied to the concentrator bringing the total main stations served by it to approximately 100 and freeing additional central office pairs. Recent growth has indicated that more than the two years anticipated deferment of the next cable job will result from the use of this one concentrator system.

In addition to the foregoing examples which deal principally with rural applications, it should be pointed out that line concentrators have a field of use in the cities also. For instance, sections of a city may exist where the telephone saturation has been slight in the past. A redevelopment project may materially change the telephone requirements there. The location of a line concentrator unit in the basement of an apartment house or housing unit may make it possible to continue the use of the otherwise inadequate outside plant by concentrating the higher service grade lines required in the apartment house or housing development on a few pairs back to the central office.

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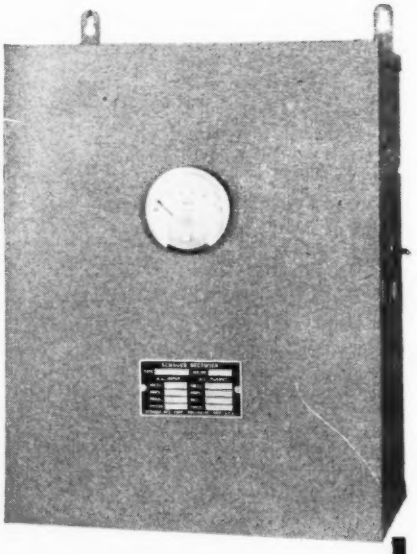
Dependable Power

for Years- and Years- and Years- of Service!



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In sizes and capacities to meet every telephone power requirement.

See your Schauer Jobber.
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ACCIDENT PREVENTION

Continued from page 44

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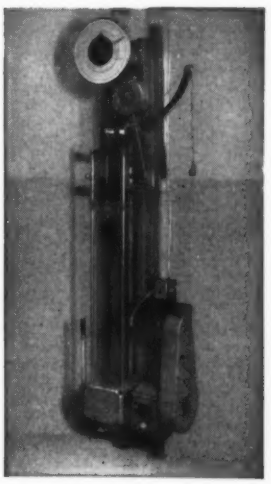
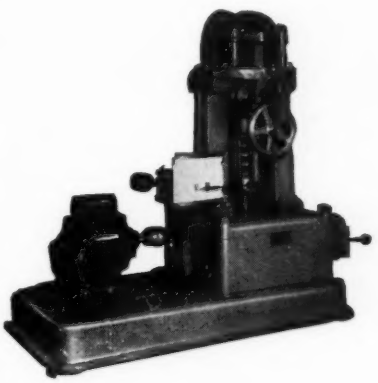
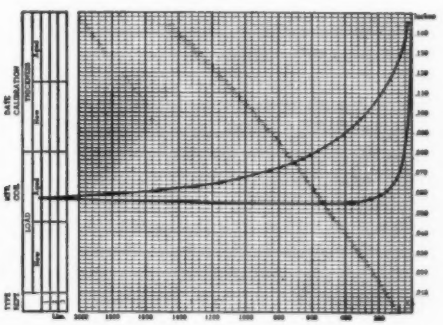
It is important to keep in mind that the training period is the time when the attitude of the worker toward safety is going to be formed. If the attitude of the trainer is not good, why should you expect anything different of the trainee?

Another thing that's basic in the control of accidents is to *know where*

With labor and maintenance costs much higher today than some years ago, it is natural for telephone companies to insist on installing drop wire that will give long service. Dependability in Lowell's complete line of Telephone Wires is assured by a technical staff using many physical tests to determine the effect of heat, aging, tensile strength, compression, cold, acids, oils, moisture and abrasion. Tensile test machine at right which tests for adhesion enables us to guarantee that the adhesion bond between the insulation and conductor is stronger than the conductor itself.







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clear lines fast with...

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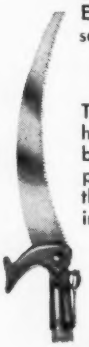

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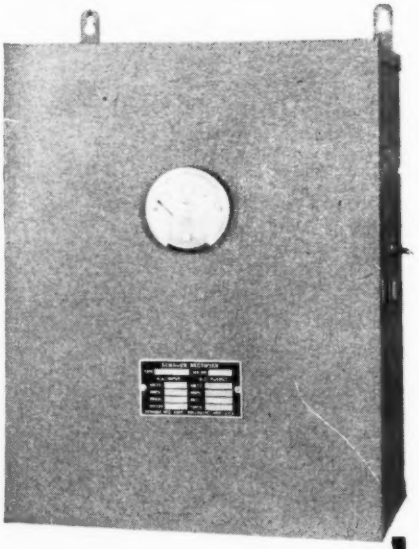

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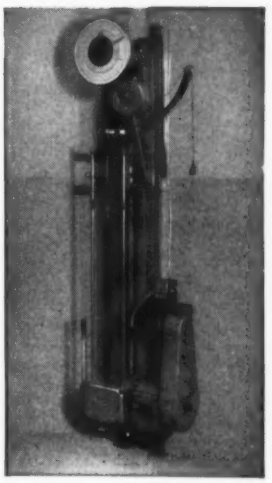

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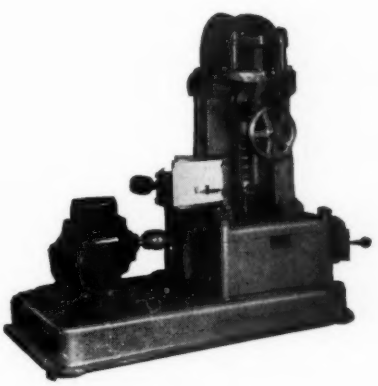

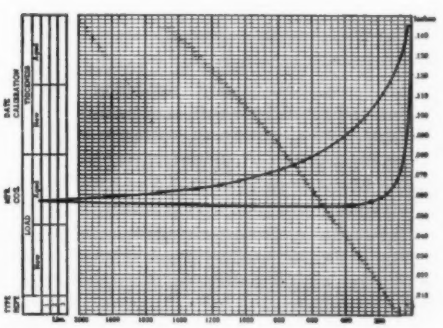

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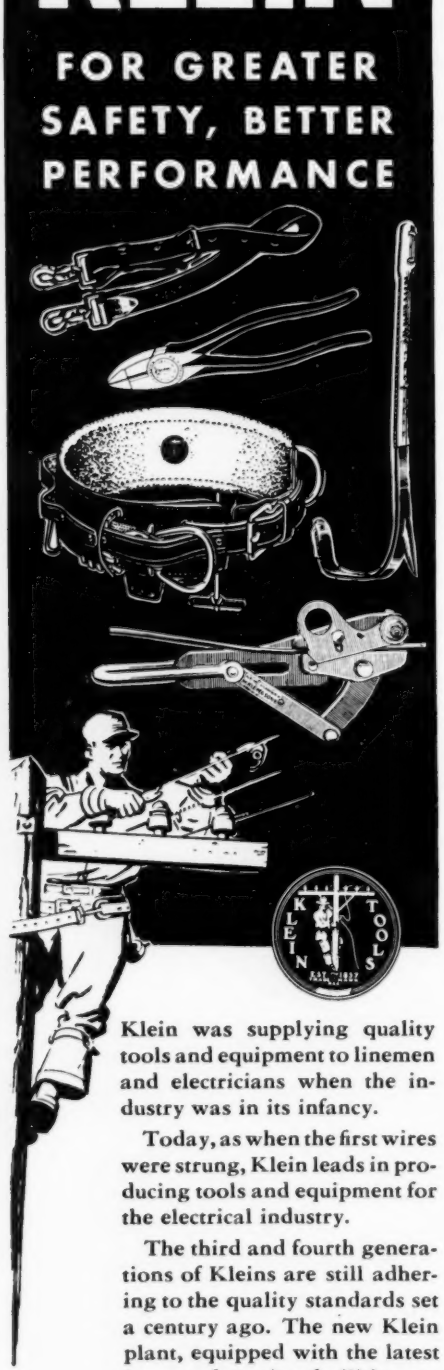

Klein was supplying quality tools and equipment to linemen and electricians when the industry was in its infancy.

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you stand. Some type of record has to be maintained. Normally, a foreman does not have to keep such a record himself, but he certainly ought to know what is happening in the area under his supervision. You may feel that you know what's going on, what happened last week or last month. That's true, but information of this kind should be part of a permanent record that is complete and accurate. It isn't just what happened over recent short periods of time which indicates your accident problems, but what happens and where, over a longer period of time. This information helps you know how you stand, what you are accomplishing, and what your problems are. Also, where and how your accidents, regardless of how minor, are happening.

Perhaps I am straying away from the assigned topic, but I do want to mention something about accident investigations. I know that the more serious ones will receive full investigation but it is equally important that the minor ones be given consideration as well. A near accident or one which produces minor injuries can point out the need for just as much corrective action as can a fatality.

I also want to mention the value of periodic inspections. Many times these are more productive if made by an outsider or someone from a different department. I know you have heard the expression—"Can't see the forest for the trees." Those working continuously in a certain area become so familiar with the existing physical conditions that they do not view them with the same critical eye that an outsider would.

Let me summarize by saying that training is a never-ending process and that applies to all levels of personnel in an organization. The attitude of the employes is largely a product of the training. However, we must not overlook that attitude toward safety can be further guided through regular safety meetings, through proper methods or correction where such is necessary and by the attitude that he sees in others in the organization. In this respect, the attitude of top management is of the greatest importance.

Small Business Successes

"The Spokane Valley is an example of an area in which small business concerns predominate. . . . Most of them are doing what the founders intended, offering bread and butter while providing a measure of independence. . . . Where the small business man has attempted to give service, keep good account of his operation and stays cheerful while putting in long hours, he has survived." — Opportunity (Wash.) *Spokane-Valley Herald.*

WHAT'S NEW IN RADIO

Continued from page 55

A further provision is that such facilities are to be used on a secondary basis, subject to primary use by public subscribers. Still more favorable, is the report and order in Docket No. 11435 in which a total of three two-frequency pairs (six-frequencies in the 450 Mc industrial band) have been made available for assignment to telephone public utilities to serve their own vehicles.

The frequencies available are 451.75 Mc, 451.85 Mc, and 451.9 Mc for the base stations, and 456.75 Mc, 456.85 Mc, and 456.95 Mc for mobile use. Although these frequencies are on a shared basis with other industrial radio services for maintenance and construction purposes, the commission stated, when adopting the order, that consideration will be given to a further readjustment of frequencies for both power and communications utilities in the power radio services in connection with rule-making proceedings currently considered in Docket No. 11253, previously mentioned under the paragraph on channel splitting.

While it is regretted that the commission did not see its way clear to consider favorably our request for three two-frequency channels to be assigned on a primary basis to Independent telephone utilities in the more populated areas and shared with other utilities in sparsely settled areas, the new assignments to serve telephone company vehicles for maintenance and construction purposes, nevertheless, will be helpful in providing an essential service not possible in the past from a regulatory standpoint.

A new technique now coming into prominence and somewhat different than the "line-of-sight" radio transmission with which you are familiar, is known as "Tropospheric-scatter," "Forward Scatter" or "Over-the-Horizon" propagation. Briefly stated, the scatter effect is realized if two narrow beam antennas, not line-of-sight, are directed towards each other with elevation angles so that they are pointed at the horizon, thus a common volume in the troposphere will result where the two beams intersect and a scattering effect not yet fully understood will take place.

Elements of "over-the-horizon" technique involve a frequency range from about 300 Mc to 5000 Mc employing relatively high power transmitters in conjunction with 28 or 60 foot diameter parabolic antennas. Although transmitter power of 10 kilowatts or more is not unusual, some experimental work is in progress involving lower power

transmitters, high gain antennas and diversity reception for operation over paths somewhat shorter than the paths of 200 miles or more that are possible with the more powerful transmitters.

Tropospheric-scatter is by no means a cure-all for all the curent radio problems. At this writing, it appears that its greatest use is for long hops upwards to 250 miles over water or in situations where operation would not be feasible due to difficult terrain between radio terminals. The FCC, in Docket No. 11709, has asked for detailed comments in connection with tropospheric-scatter for fixed operation and whether this type of transmission should share frequency space with conventional fixed circuits in bands above 940 Mc. The prevailing opinion, in view of the early stage of development of "tropospheric-scatter," is that the time is not yet ripe to make specific allocations.

A word in connection with the petition of the Minute Maid Corp. to the FCC briefly reported on at last year's convention. This corporation, with extensive operations in the growing, harvesting, hauling and processing citrus fruits and vegetables in Florida, filed a petition with the FCC for a private microwave network to serve eight widely separated points located in Florida. At present, the Minute Maid Corp. is leasing wire facilities in the operating area of three Independent telephone companies and one Bell company and it indicates ultimate requirements of about 1,000 circuit miles.

The USITA, along with the three Independent telephone companies and a Bell Company, filed statements with the FCC showing their readiness to lease available wire facilities to meet service demands of Minute Maid in this area. There have been no further developments in this situation except that the Minute Maid Corp. is still leasing common carrier circuits pending action on its petition by the FCC.

Early this year, an informal exploratory conference, attended by interested parties, was held in the Aeronautical Radio Inc., offices in Washington to discuss possible requirements, ways and means, and recommendations in connection with the providing of air-to-ground public telephone service. During the discussion, Bell System representatives expressed their willingness to work out the details of a plan to meet service requirements and then call a meeting of interested parties, including manufacturers, to discuss the question further.

In August of this year, the writer, representing our association, met with Bell System representatives and a detailed plan to cover air-to-ground pub-

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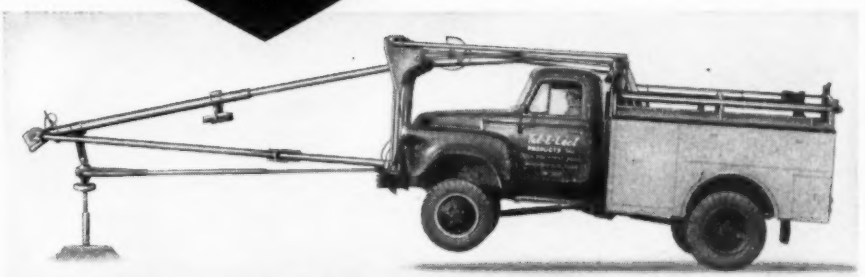

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lic telephone service was reviewed in some detail. It was shown for satisfactory coverage on a national basis that a network with radio stations spaced approximately 150 miles apart would be necessary. Subsequent meetings with other interested parties, including equipment manufacturers, was held and in the discussions it was brought out that as many as 25,000 transport and executive private planes might require this service in the not too distant future.

As the question now stands, the Bell System will continue to study ways and means of providing air-ground telephone communication service that will be attractive to private and transport aircraft operators and this association will work closely with the Bell System to ensure complete coordination of activities.

As an indication of things to come, the REA has plans for subscriber's automatic dial radio telephone service to bring telephone communication to a large segment of the nation's isolated rural population, also to include common carrier mobile communication for remote areas not presently served. Consistent with this planning the REA has asked the FCC for rule changes to permit unattended use of radio stations necessary to the dial operation without the services of an operator and the usual logging of calls. A radio project to develop equipment that will work satisfactorily directly into dial telephone switching equipment is part of the plan.

Under the heading of "Carrier Coordination," there has been little activity of note during the year. The expected onrush of carrier systems to provide service for rural subscribers on frequencies not compatible with existing carrier systems has not materialized.

SUBSCRIBER LINE CARRIER

Continued from page 56

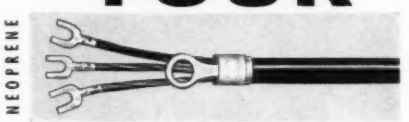
The amount of time required to complete installation of proposed facilities is usually of importance.

In most instances, the amount of time involved for installation of a communication system built around the application of subscriber line carrier would be negligible in comparison to the amount of time required for expansion of cable or open wire plant.

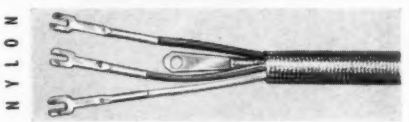
Proof of such ease-of-installation can best be shown by considering an installation at Lebanon, O. Although this was a relatively simple installation, which provided private line service to a subscriber from this exchange, the equipment was received and placed in service in one day.

CORDS BY Runzel

YOUR



BEST



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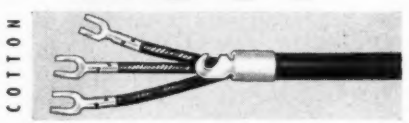

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The reliability and cost of maintenance reflects itself in many ways. Among these are poor application engineering, purchasing inferior equipment, and lack of a properly supervised program of maintenance.

All communications equipment is designed for certain specific applications, and specifications are drawn up to indicate performance under various conditions. To extend the application to this equipment beyond the limits for which it was primarily intended is subtracting reliability and increasing the costs of maintenance.

The reliability and costs of maintenance are also reflected in the quality of components and material selected for use in the fabrication of the equipment —such seldom comes cheaply. Quality always costs a little more initially, but in time pays off.

By applying good engineering techniques and purchasing equipment of quality, one can build into carrier installations a reliability equal to, or greater than, that of cable or open wire plant.

There are few telephone companies in the nation today that are not faced with the problem of growth in at least one of its exchange areas, or that will not be faced by growth in the future. In selecting a communication system, we should consider this problem carefully. We should prepare ourselves for the unimaginable.

Through the use of subscriber line carrier, it is possible to adapt our plant more readily to meet this growth. Multiple channel systems are presently available in which channels may be installed, as are presently required, quickly and economically. Additional channels may be installed in the future as required with the same ease-of-installation and the same economy as initially equipped systems. One system which has been developed has a five-channel capacity per wire pair—limited, of course, to the characteristics and conditions of the various leads on which it is superimposed.

We have reviewed considerations in selecting one medium over another to meet increasing demands for service. Each of these considerations are important. In many projects, applications of subscriber line carrier will prove in. It may well be the answer to many of our expansion problems.

In conclusion, we can say from our experience in Ohio that:

(1) The use of the transistor in the design of carrier equipment, will, by the resulting elimination of tubes and lower power consumption, make the subscriber line carrier more adaptable for consideration than in the past.

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(2) The inherent ability to be able to reuse this equipment as our general distribution system plans change, makes the subscriber line carrier particularly adaptable for relief or interval application.

(3) Carrier is now and will continue to become an ever more important part of our general distribution system.

CONTROL OF ABUSES

Continued from page 65

ice." In other words, are they, through lack of information and guidance, contributing to the undesirable situation? If your experience is anything like mine, the answer to this last question will frequently be "yes"—meaning that they are, through ignorance of our intentions, aggravating the situation.

This brings us to the last step in the control of abuses, that is to provide our employes with adequate background and guidance which is always available to them. Many companies have accomplished this firstly, by filing tariffs that, in addition to rate schedules, include general declarations of policy, together with inclusive and exclusive definitions of their various services. These definitions specify what the company proposes to do, and under what conditions it will do it, and what it expects from the user in the way of performance and cooperation.

The larger companies have for many years supplemented their tariffs with ready reference material that employes always have at their finger tips. In the commercial departments of these companies, such material is put into commercial practice binders, letters, memorandums, etc. In other departments, policy background is woven into departmental instructions such as plant and traffic practices. However, I am sure that these larger outfits need no assistance from me. Therefore, I would like to direct my remaining remarks to the smaller operator.

In this day and age, even the small operator runs a good sized business. Few, if any, can conduct their businesses without employes. Because of the nature of the business, those with whom I am acquainted spread themselves pretty thin, and for this reason they cannot possibly be at the elbow of each employe all the time. In other words, the small operators need to provide their employes with adequate information and guidance just as much as the larger company does.

If you operate one of the smaller companies and you have not been able to furnish your employes with the sort of information just described, one reason may be that you have not had the time yourself and do not have anyone in your organization who can take on the assignment. If that is the case, part

of the answer to your problem may be waiting for you—ready made.

Two years ago your (USITA) Commercial Committee recognized this problem and presented a model tariff for your consideration. It had been submitted to many state regulatory bodies for comments and criticism before it was presented here. Without exception, they approved it. It is a document that can be adapted to any company's needs with very minor modifications. If you are in favor of making your policies and practices a matter of record to safeguard against discrimination, and to give your employes a better knowledge of your business, I suggest you give serious consideration to the use of this model tariff.

If you do adopt the model tariff, then you can easily amplify any aspect of your policies or practices by interleaving memorandums in appropriate places to explain or clarify your intentions or the language of the tariff. A small company which has done this and makes copies of its tariff accessible to its employes will have everything the large company has in the way of adequate information and guidance for them.

If this discourse has caused you to think about your abuse problems, each of you, I am sure, can come up with better methods for solving your local problems than any I have suggested. Should that turn out to be the case, I would appreciate it if you would take the trouble to write me about your efforts in this direction. In this way, your ideas can be passed on through the (USITA) Commercial Committee to others who may need help.

COMMERCIAL PERFORMANCE

Continued from page 72

to thousands of our subscribers, who perhaps may be living at points 60 or 80 miles away from the toll center in which she works. In a large degree, the responsibility for maintaining a personality in the company to the customer will be upon that girl's shoulders. It logically follows that this girl must have available to her a generous amount of training in the commercial approach to many telephone problems and she must be commercially minded enough to be able to create a good public reaction to her efforts.

All of this, it seems to me, will be necessary in addition to her primary assignment, of being a very technically skilled traffic operator. In order to make this conversion program possible traffic-wise, we are finding it necessary to make changes now in many of our practices and procedures that will make the transition a smooth one when it comes to pass. Many of these changes will have little effect or impact commercially, still there are others in which there will be a considerable area where the commercial department and the traffic department will have to work together very closely to make these changes effective.

The "Call by Number" program is a good example. This activity is a vital one to the future success of Direct Distance Dialing and offers terrific opportunity to lower traffic costs immediately. I have heard of a few instances where the commercial department has taken a lukewarm attitude toward the "Call by Number" program. I cannot help but feel that this attitude prevailed because there was not a complete understanding of the importance of the project between the departments involved.

In our own experience, our commercial department has been most cooperative. Our department instituted the proper phrases and our PBX instructors, calling upon our PBX users, explained the advantages of placing calls by number. But in the final analysis the commercial department has carried the load by customer education through institutional advertising, novelty advertising, such as pencils, rulers, balloons, etc., radio and TV ads and newspaper releases. This has resulted in a steady

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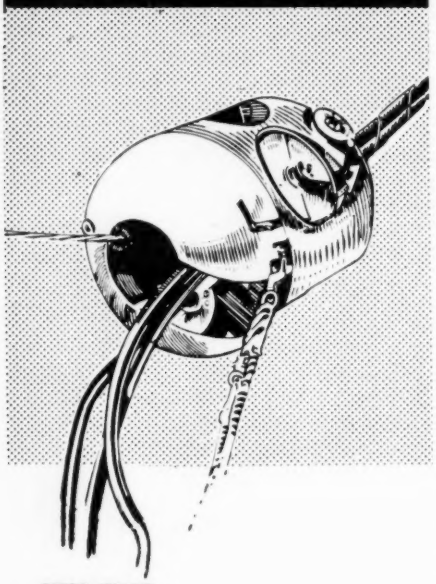
THREE TO ONE



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gain each month in our percentage of calls offered by number.

The adoption of the "Oregon Plan" of handling delayed traffic was one in which commercial cooperation was vital. This method of handling delayed traffic has been very definitely responsible for much faster long distance service and the customer education necessary to make this plan effective has, in a large degree, fallen upon the commercial department. This plan of handling delayed traffic has been so successful in our own case that we have extended the procedure to include practically all types of delayed traffic and this has resulted in speeding our delayed traffic to levels heretofore considered as impossible. There is, at the present time, new practice changes that are being adopted by the various associated Bell and Independent companies that will require better and closer commercial-traffic communication.

Some of these changes will be noted by the customer, so I think it is particularly important that the Commercial folks should be on top of them. Most of these changes are being brought about by equipment modification that will be contiguous with Direct Distance Dialing, so that when DDD comes to town it will be among friends. Recently there have been 29 proposed changes to the operating practice. All of which are designed to advance this objective. Of these, I should like to enumerate five that will perhaps have the largest commercial impact in your day-to-day customer contacts.

First, the practices are being rewritten in such a manner so that the "outward" operator encourages the calling party to remain on the line until the call is completed or the first report given. When this practice is put into effect it will not only save operator time, but will save much toll line usage and will, at the same time, eliminate a source of irritation that we now have when long distance calls are advanced to the called party only to find that calling party has not only left the line but cannot be reached. The establishment of this idea will logically result in more completed calls but, in the main, will effect a much speedier overall long distance service to our users. You commercial people will be required to explain this to your customers.

Second, another change provides that the outward operator will omit the name of the calling place in cases where calls are announced to the called telephones. Instead she will announce her call with "Long Distance." This will result in a simplified announcement procedure and eliminate a problem posed by present operator arrangements whereby outward long distance traffic at some points is handled in other localities.

Third, under another new practice, geared for quicker service, the outward operator will accept routing directions volunteered by the customer if they appear to be complete and accurate. Also, new procedures involving the use of recorded announcements will help to space call attempts in case of serious circuit or machine overloads and thus reduce congestion. These procedures were tried out successfully last May in the handling of Mother's Day traffic.

Fourth, provisions are also being made for eliminating, on the part of the operator, split connections thereby allowing our customers to stay on the line whereby they can assist more in advancing their own calls.

Fifth, an effort will be made to secure the initial deposit on calls from coin telephones before taking up the circuit. This is an attempt to standardize a procedure which should be helpful in minimizing circuit holding time. On collect calls, it will be no longer necessary to check the class of service at the distant information board if the operator knows the called telephone is not a coin. Also, where locally authorized, the checking will be omitted if the customer states that the called telephone is his home or office telephone or is not a coin telephone. I think that this will prove interesting to some of you who have had to answer toll complaints caused by the present practice.

Each of these changes has been initiated because at this time there seems to be a real need for them and I feel sure that if you are commercially aware of these needs you will be the better enabled to answer customer questions about them.

The traffic department through phrases to the calling public, and through PBX instructor visits, can in a large measure initiate and carry out these practices so necessary to DDD operation, but you commercial people with your ever present opportunities for public speaking assignments, your service club contacts, your daily customer and sales contacts can materially assist these programs and as a result contribute to an improvement of your public relations.

You know, perhaps, that the commercial people in general have a glamorous assignment in the eyes of other employes in the business. You front for the company and in so doing keep contact with local customer situations. If you can find some way of transmitting the traffic picture to these people and at the same time transmit to the traffic people the attitudes you have gained through these contacts, I think you will find your efforts rewarded. A traffic operator who is well-informed commercially will create a pleasant customer response.

Recently, I heard a financial analyst from one of the large eastern mutual investor trusts say, that in evaluating the financial position of a company he did, among many other things, stop an employe of that company and inquire of him how much he knew about policies or attitudes of the company. If the employe responded with a half-hearted or negative attitude, the analyst

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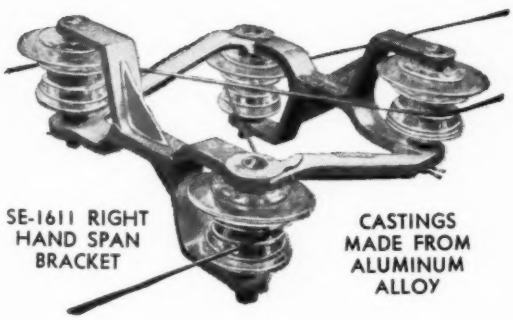

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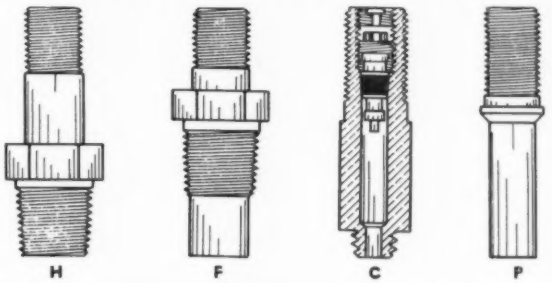

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These valves provide points for measuring pressure and admitting gas for cable pressure testing purposes. Made of brass. H & F stems nickel plated. C & P stems electro-tinned for soldering to cable. All valve stems come equipped with a core having a stainless steel spring. Individually packed five per box.

M VALVE CAP

Heavy duty hexagon brass nickel plated cap with block tin gasket. Packed five per box.

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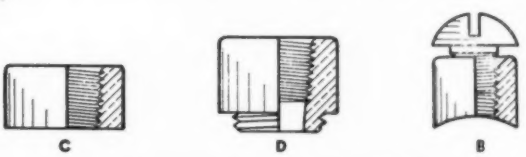
Stamped brass nickel plated cap with rubber gasket. Packed five per box.



PRESSURE PLUG FLANGES

C FLANGE: Made from bronze, electro-tinned for soldering to cable. Will take F & W valve stems or C pressure plug. Packed 25 per box.

D FLANGE: Made from bronze, electro-tinned for soldering after screwing into cable. Will take F & H valve stems or C pressure plug. Packed 25 per box.

B FLANGE: Made of brass, electro-tinned for soldering to cable. Used for attaching threaded nozzle of pressure gun to cable. Equipped with brass sealing screw. Packed 50 per box.

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Made of bronze. Used with C & D pressure plug flanges. Packed 25 per box.

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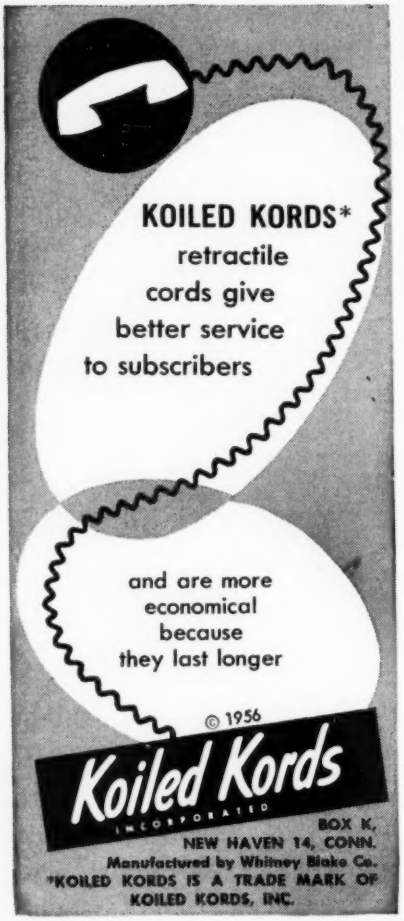

said that he thought that it reflected the top level to a marked degree.

I do not know whether this is a representative approach to a financial appraisal or not, but at least it reflects some people's conception of the importance of well-informed employes. The traffic department, which in many instances accounts for 35 to 40 per cent of the entire employe force of a company, provides a splendid media for the commercial department to broadcast to the calling public the real and progressive attitude of the company.

If you will permit me to inject a personal note, I should like to recall that time in my experience when I was assigned to a functional job as a commercial manager for several exchanges. I found myself in one of those rather typical (and unfortunate) situations where the three operating departments had been at odds for some time. I thought it would be a good idea to invite the chief operator and wire chief to join me in regularly scheduled conferences, for the purpose of discussing problems of mutual interest.

The first few meetings were so formal and so distant that I felt that my effort would certainly result in failure but it wasn't too long before we found ourselves discussing matters of mutual interest with an interest in each others problems. We were able to pass on criticism and comments that had been directed towards the various departments without incurring rancor on the part of the department head to whom the complaints were directed.

As a commercial man, I found that this exchange of information made me a better informed manager, inasmuch as many times I was advised of potential complaints before I received them and as a result was able to meet such complaints when they arose with much more assurance and fact to the customer. I also found the other department representatives were able to offer to their employes a better commercial attitude in many instances.

I have made reference to this personal experience because I am sure that there are some of you who are asking how can this communication be established? Certainly the normal flow of communication between the two departments is the beginning point. I suggest that this flow of communication be as uninhibited and as enlightened as possible. Departmental meetings at local, area, district or general levels are very fruitful and if they are not being scheduled I suggest that you review such possibilities.

Your merchandising plan should be discussed with reasonable frequency first-hand between your representatives and the individual traffic employe. I hold that it is unfair to generalize about any particular group although I know there has been much generalization about the various problems of supervising women. It is my opinion that, as a work force, women are really not so much different than men in that they respond to supervision that is fair and to one that doesn't take them for granted. Their response to commercial sales effort will vary directly with the amount of attention the commercial people will give them.

Your traffic department no doubt has skilled employes in an area where it is difficult to develop these skills in the commercial department. By this I mean, the PBX instructresses and the traveling instructors are, many times, able to assist commercial people in contacting their customers about toll problems. In the introduction of DDD operation to the public some companies have found that the commercial department could use traffic operators for contacting their subscribers to instruct them in the proper use of the telephone. The use of traffic personnel in open house activities and special business-education days and in other public relation efforts has proven itself to be most worthwhile.

A representative of one of the associated Bell companies related to me

ELECTROMODE AUTOMATIC ELECTRIC HEAT SOLVES PROBLEM IN UNATTENDED DIAL EXCHANGE

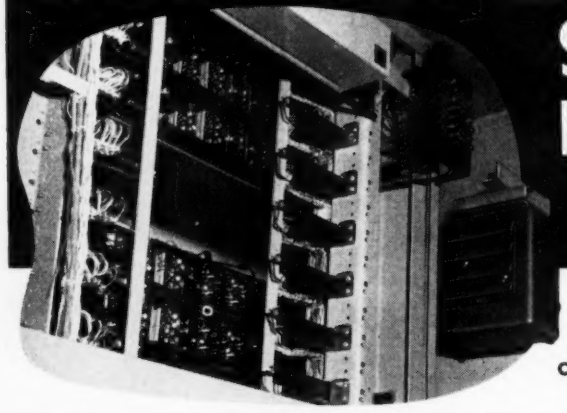

Illustration left shows one of two Model AA-15A Electromode Heaters installed in the Union Exchange of the Consolidated Telephone Company, Union, Kentucky.

The problem was to maintain a minimum temperature of about 45 degrees and to provide more heat on the few occasions when employees are required to work. The exchange is located in a 12′ x 18′ well insulated building, and with the thermostat on one heater set slightly above the other, it has been found that except in extremely cold weather, one heater carries the load. "This installation," according to Mr. G. B. Foscue Jr., general manager of the exchange, "has been in service three winters and has required no maintenance."

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one of their commercial experiences where they were most successful in having traffic employes contact large toll users prior to DDD conversion. These traffic employes were able to successfully eliminate a large percentage of "Time and Charge" requirements by customers who had previously been insisting upon them. Also, in some instances they were able to substitute exchange trunks in place of toll terminal trunks thus substantially increasing the effectiveness of DDD equipment.

James Russel Lowell said in one of his poems, "New occasions teach new duties; time makes ancient creeds uncouth." New equipment requires different duties and certainly time has proven that yesterday's methods are good only so long as they meet today's requirements. In tomorrow's future there will be telephone operators in generous numbers. I have indicated that she will no doubt be an intelligent, well-trained employe, so if you will take a tip from one old commercial hand to another, it will pay you huge dividends to follow my lead when I visit my favorite filling station and call out to the attendant "Fill her up with TCP!"

Personal Freedom

"No one is a slave whose will is free."—TYRIUS MAXIMUS.

YOUR ADVERTISING PROGRAM

Concluded from page 74

that they are good business citizens who are interested in the welfare and betterment of each community in which the company operates. This is not only the responsibility of the top management but should go right on down the line and should be conducted in the name of the company and not in the name of a miscellaneous group of individuals.

By your activities and associations, you are judged as an individual. The same holds true for a business concern. By its conduct and activities so is a business judged and a utility in particular because of its monopolistic nature has a responsibility towards the municipalities within its territory that goes beyond merely providing reasonable telephone service. This attitude has developed over the years and has become a part of the telephone tradition of community service.

If your company has, through years of effort, obtained that position where the communities look upon the company as an asset and the subscribers take a personal interest and a personal pride in the progress and development of the company you have been, in the full sense of the word, living up to your advertising or public relations program, but once this position has been attained do not lose it by relaxing your efforts.

REPORT OF TRAFFIC

Concluded from page 78

lishing and maintaining better nationwide service and more uniform methods.

What about the future? Accelerated progress (will be seen) in customer toll dialing, with perhaps one-fourth of next year's dialable calls handled by machine. We can forsee some important changes and developments coming such as inward dialing to PBX stations; the possible elimination of flashing signals on the intertoll network; more streamlining of operation on manually handled traffic, to name a few. There are many advantages and pitfalls, and we must carefully consider each step to be sure that it is sound and well-timed. Let us not be caught in the rushing tide of progressivism without a well-charted long-range program.

Prescription for Prosperity

"There is no better way to upset prosperity than to step on the gas and travel at a dangerous speed or to jam on the brakes too suddenly."—HENRY H. HEIMANN, *executive vice president, National Association of Credit Men.*

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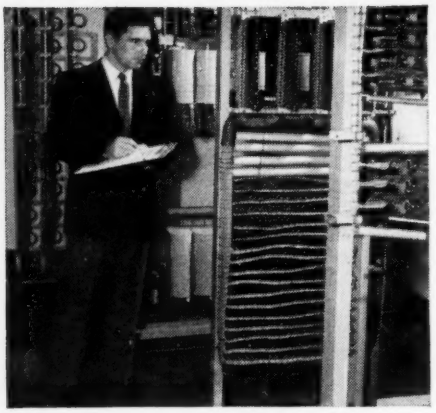

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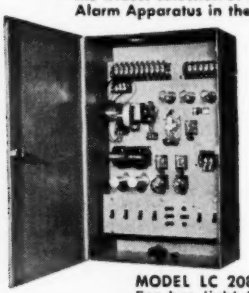

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JOB INTEREST

Concluded from page 80

new procedures, ask for a discussion, reach a clear and definite understanding, and is thus assured of uniform understanding of instructions. All will have identical information plus the opportunity to ask any question regarding the change *before* it is put into operation.

While meetings offer the best possible means of getting the same understanding of information to everybody at the same time, the mere fact that a meeting is held is certainly not enough. A meeting must be effective. We have all attended meetings which were not only a waste of time but actually hurt the purpose. But, properly held and competently led, they serve to build a unity of purpose and action.

One very damaging blunder that is prevalent in meetings is the leader or supervisor who seizes upon an employe meeting to get things off his (or her) chest. Maybe not just operating errors but pent up feelings left over from a family argument or a bad night are vented on the poor listeners.

Another thing, don't lose the goodwill of the employes by asking them to stay over time or come in for a meeting on their own time. Once in a while, if unavoidable, this might work, but the resentment will be there, and no matter how good your meeting may be or how noble the cause — you will have lost that valuable good-will and cooperation. And, having experienced this from both sides of the fence, I speak from first hand knowledge.

In our company we hold division level traffic conferences, with the division manager, traffic supervisor and chief operators attending. Usually some one from the general office leads the discussion. Then following these meetings the chief operators plan meetings with their supervisory people to communicate the information they got at the division meeting. In this manner, all chief operators have received the same information and so all take back to their offices a uniform understanding of procedure.

While I certainly am not an authority on how to conduct a meeting, I've listened to many who are authorities (and many who *thought* they were). From these experiences I'd like to offer a few suggestions to those who would like to improve their meetings or who want to establish employe meetings.

(1) The first thing the leader must do is to convince himself that he can do it. It is most certainly not necessary to be a public speaker to be able to conduct a good employe meeting. Just be sure that you know your subject and that your speech is audible and intelligible. Don't fail to plan the meeting for planning gives self-confidence, the *best antidote* for stage-fright.

(2) Plan meetings at a regularly established time. Have a maximum time limit and adhere to it. When the meeting has fulfilled its purpose, adjourn it promptly, whether it has been ten minutes or an hour. Leave time for questions.

(3) Conduct the meeting on company time. Remember that it will fall short of the goal if resentment is incurred by imposition.

(4) Plan the meeting—make a written outline to follow. Arrange the items to be discussed in some logical order. The expenditure of time and man hours justifies a carefully thought-out plan. This is an excellent opportunity for any supervisor to win confidence by demonstrating efficiency and leadership.

(5) Arrange for a quiet and comfortable place which will be free from interruptions. "If it is worth doing at all it is worth doing well."

(6) Keep the discussion on the subject at hand. A good mediator must learn to "corral" the strays, and diplomatically lead straying conversational dogies back to the fold.

(7) Keep the meeting positive in tone, let the "do" attitude prevail—never the "don't." The meeting is no place for reprimands or disciplinary measures, singular or wholesale.

(8) Above all, *don't* dominate the meeting. This is not the time nor place to impress the listeners with your oratory. Too many people have the irritating "I—My" habit—if you are going to do *all* the talking why not just write it? State the purpose of the meeting, then encourage and, if necessary, lead discussions on the subject. And *don't let some eager beaver* dominate the discussion. There's one in every crowd.

(9) Do have in attendance only people who have a general or common interest in the subject. If the meeting only deals with traffic problems, have only traffic people present.

(10) Begin and end all meetings on an optimistic note—one of encouragement and justified praise. Remember that good-will and whole-hearted enthusiasm are not the product of force —they come from within, the result of effective and inspiring leadership. Goodwill, enthusiasm, and cooperation are infectious, and to insure the spread of this desirable infection throughout all work levels, the germ must emanate from management. For "Blessed is the leader who seeks the best for all he serves."

REPORT OF ACCOUNTING

Continued from page 82

station apparatus between customer premises and company stock.

Coincident therewith station installations and drop and block wires will be combined in a single account designated "Station Connections." The new account will be considered depreciable in contrast with the non-depreciable status

of the superseded accounts. The substitute of depreciation charges for wiring gain and loss entries in the income account should serve to minimize the effect of abnormal station removals or reinstallations. The committee appreciates, of course, that changes in accounting such as the foregoing require careful planning and will not be taken merely in stride. Many years have gone into study of the problems involved and some time will be required to fully consummate the changes. . . .

The Treasury Department has revised the form for reporting excise tax collections. On July 3, 1956 came the announcement from the Treasury Department that it proposed to revise its Form 720 "Quarterly Federal Excise Tax Return," effective with the quarter ending Sept. 30, 1956. Changes in the form were found to be in accord with those suggested by the Accounting Committee more than two years ago at which time it objected to the furnishing of gross billing and exemptions for each type of service subject to the tax. Accordingly, the association went on record as favoring the revised form which has since become effective.

We are advised that the Treasury Department will require, with returns for the quarter ended Dec. 31 of each year only, a questionnaire designed for "yes" or "no" answers relating to the taxpayer's methods of record keeping. Thus, telephone companies will be spared the inconvenience and expense of maintaining records for tax purposes which otherwise would not be required.

Simplified billing procedures on federal government accounts (have been adopted). While modification of the special requirements of federal government billing has long been an objective of the Accounting Committee, it was not until this year that its efforts have shown any appreciable results. In a move designed to "simplify billing procedures of telephone and telegraph companies and render such procedures uniform with billing used for commercial concerns," the Comptroller General of the United States on Feb. 3, 1956 announced the discontinuance of most of the special telephone billing requirements.

A letter addressed to the heads of governmental departments explaining the new procedures called attention also to the fact that the Government Accounting Office, in its audit functions, would require only the original of the involved invoice or bill. At the same time all governmental departments and agencies were requested to review their requirements with a view toward eliminating any copies of bills or invoices for which a need did not exist. Reports indicate that the request

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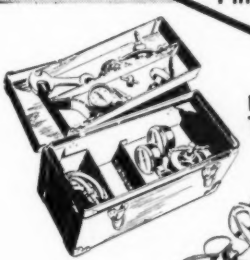
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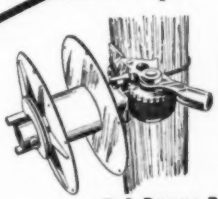
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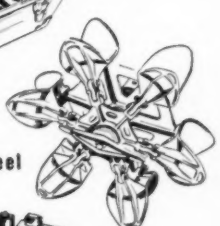
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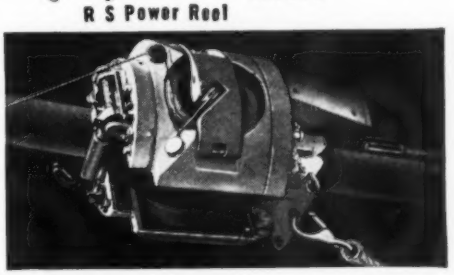

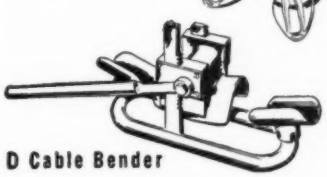
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was well received and that governmental agencies generally are cooperating with the program.

The Treasury Department has issued (new) depreciation regulations. The committee has followed very closely the proposals of the Treasury Department for revising its regulations on depreciation. The necessity for such revision stems, of course, from the accelerated methods permitted under the Internal Revenue Code of 1954. The regulations are now in final form, having been adopted by the Treasury Department on June 7, 1956.

While there appears to be developing a pattern for the accounting treatment, it remains to be determined how regulatory bodies will deal with the matter of accelerated depreciation and the tax deferrals resulting therefrom when they become a factor in the determination of service rates. Companies electing to use one of the alternative methods permitted will be interested in this important phase of the matter.

Although the subject was presented at last year's Accounting Conference, it continues to be an important one. Since that time many commissions have issued accounting orders dealing with accelerated depreciation. On the question of rate treatment, however, there remains much to be said. In repeating the subject on this year's program the committee hopes to present to the conference the latest developments on this important matter.

SIMPLIFIED ACCOUNTING

Continued from page 86

Apparatus. The maintenance material now in Account 122, Material and Supplies, will be charged to Account 605, Repairs of Station Apparatus.

The new revisions in the Uniform System of Accounts will do away with the need for plant retirement accounting for interim outward movement. It will also eliminate plant addition accounting for inward movement of station apparatus reused. This equipment will remain in the asset account at original cost throughout its physical life. This is true whether the equipment is in stock available for installation—in process of being repaired or rebuilt—installed and used in service or in the status of left-in-equipment. Station apparatus parts would also be charged directly to the plant-in-service account if important enough to qualify as major units of property or betterments. Otherwise, the units would be charged directly to expense accounts. Under no cirmumstances would they be charged to the material and supplies account.

The units of plant-in-service will be composed of the revenue accounting billing records, the plant record of left-in stations and preinstalled stations —plus the equipment on the shelf. These records must be maintained in a manner that will insure the integrity of the accounts. Physical inventories of equipment on the shelf and in the repair shops are to be taken each year.

How the new procedures are put into operation will depend on several factors:

(1) The amount of property in each one of the categories.
(2) The disposition units established in each company.
(3) The procedures now being followed by the company.

It should be kept in mind always—that the burden of proof rests with the company. It is the company's responsibility to maintain its records in such a manner that in any proceeding before the commission the company will be completely prepared to prove the physical existence of the property—its original cost and that a proper basis of retirement has been followed when the property is abandoned or disposed of.

Wording in the new accounting requirements gives consideration to the varying operating conditions of the relatively small companies as well as to the large operating units of the Bell System. Obviously, a company with 50 booths will need different procedures than a company with 50,000 booths. The smaller company may find it more economical and desirable to maintain its record of booths on the basis of identity with the original cost allocated to each specific booth at the time of purchase.

The larger company, on the other hand, may want to keep its records on the basis of average costs. Also, the larger company may use statistical analysis and sampling inventories to determine the surviving plant, age of retirement, etc. The large company may purchase major parts of apparatus and assemble much of its own equipment in its shop, while the smaller company may purchase equipment already assembled. In each case, the disposition units would be different and the new requirements take this into consideration.

There is nothing in the new procedures which would prohibit the company from keeping a detailed record of the movement of each station if it desires to do so. In other words, with very little change from the detailed procedures now being followed the new procedures can be adopted and then the company can progressively work toward the elimination of the detailed plant reporting. This will maintain the

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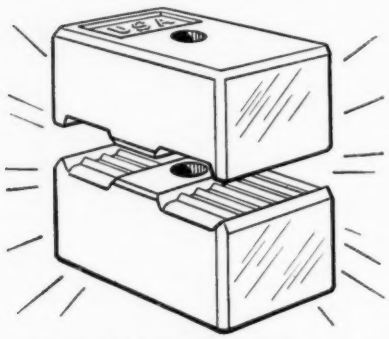

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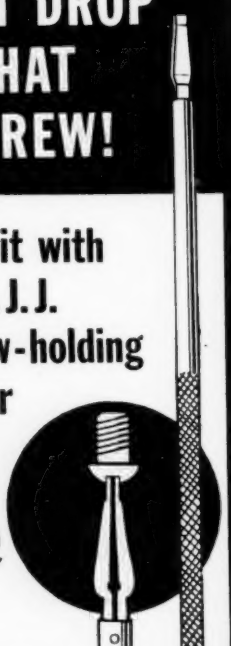

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integrity of the present records and will give time to gain experience in maintaining the records without the detailed reporting. This can be done by establishing subaccounts in Accounts 231, Station Apparatus, and 232, Station Connections, for each of the segregations the company desires to maintain.

At the 1956 annual convention of the National Association of Railroad and Utility Commissioners held in July in San Francisco, its accounting committee said:

"The FCC staff has been informed that your committee (NARUC) views the proposed total service-life or cradle-to-grave accounting for station apparatus, including small private branch exchanges and booths, as having many advantages and would hope to see it adopted as soon as feasible. Meters for use in measuring electricity, gas, or water delivered to users are now accounted for in the manner here proposed for telephones with satisfactory results."

The order of the commission in this matter carries a mandatory effective date of Jan. 1, 1958. Companies have the option, however, of voluntarily putting the procedures into effect as of Jan. 1, 1957. The Federal Communications Commission in its order said, ". . . it is believed that alterations of the type being made should become effective only at the beginning of a calendar year. It is provided, however, that those companies desiring to do so may place the amendments into effect as of Jan. 1, 1957."

The commission understands that many telephone companies intend to take advantage of this option of a Jan. 1, 1957 effective date and it would seem that benefits would accrue to companies, regulatory bodies, and the public if it were possible for all Class A and B telephone companies to achieve a Jan. 1, 1957 effective date.

The USITA committee's recommendation is that you make the new accounting requirements effective on the earlier date—Jan. 1, 1957. The reduced volume of plant reporting and accounting work will mean important economies for the company. The accounting committee of the NARUC has requested that the new procedures become effective at the earliest practical date so that as many companies as possible will be on a uniform basis for reporting purposes. If the local state commission has not already given its approval, it is suggested that the company contact the commission and get a waiver which will enable the company to put the new procedures into operation on the earlier date.

In conclusion, if assistance is needed in establishing these procedures, I am sure the local Bell company will help. In the General Telephone System we are developing instructions for the adoption of the new accounting procedure on Jan. 1, 1957 on a uniform basis. Copies of our procedure will be available upon request.

I suppose that most of you think that the only thing that doesn't change —is change. And I know that most of us resist change—even if, in some instances, it is good for us.

RECENT DEVELOPMENTS

Continued from page 90

taxes at no cost—it would have the same effect as deducting such deferred taxes from the rate base.

Commission Action for Rates

Undoubtedly there will be numerous rate proceedings and court decisions relative to the appropriate treatment of deferred income taxes for rate purposes.

The New Mexico commission has issued an order in the case of a telephone company in which it approved tax deferral accounting for book, rate base and rate determination purposes by charges to expense and credits to a reserve for deferred taxes. It is not clear to me, however, how this commission proposes to deal with accelerated depreciation in a rate case. This order was issued in connection with an application for an accounting order. It did not involve a rate proceeding.

The Pennsylvania commission has held that accelerated depreciation permits utilities to reduce their cost of service over an indefinite but extended period of time and that the "normalization" of income taxes is not justified.

The Indiana commission, however, has taken the opposite approach in its decision of a proceeding with the Public Service Co. of Indiana. It allowed deferred income taxes resulting from the use of Section 167 to be charged against net operating income for rate purposes. The commission stated that it was not unmindful of the fact that accumulations of deferred taxes provide large amounts of interest free capital, and tend to satisfy requirements for new capital, and have the general effect of reducing that cost of capital. It stated, however, that if it denied the charge to net operating income, it would tend to set aside the stated desire of Congress—the provision of interest free funds, thereby taking some of the pressure off the national markets.

The Oklahoma Corporation Commission, in the case of Oklahoma Natural Gas Co., stated that the earnings of the company for rate determination purposes, rate base and rate making, shall

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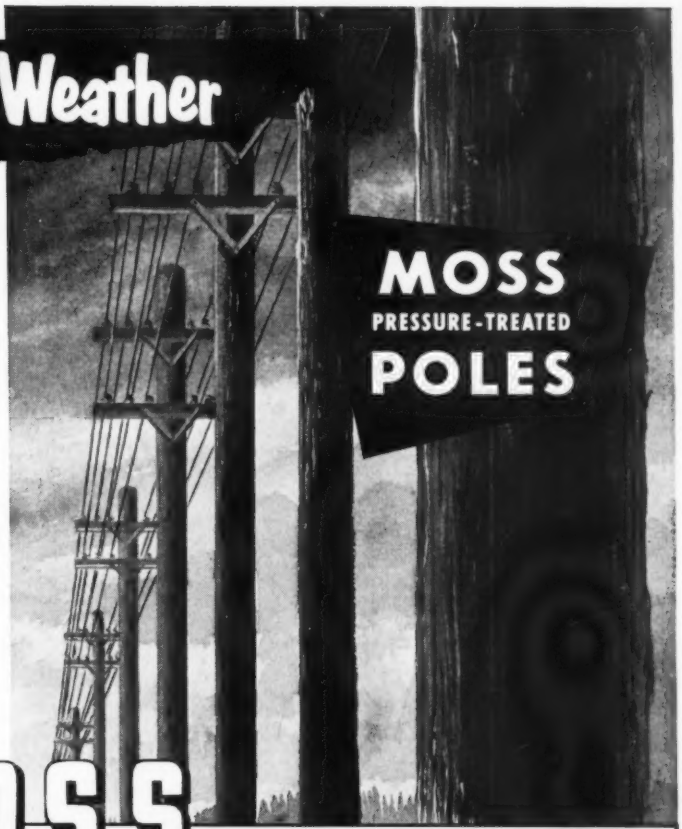

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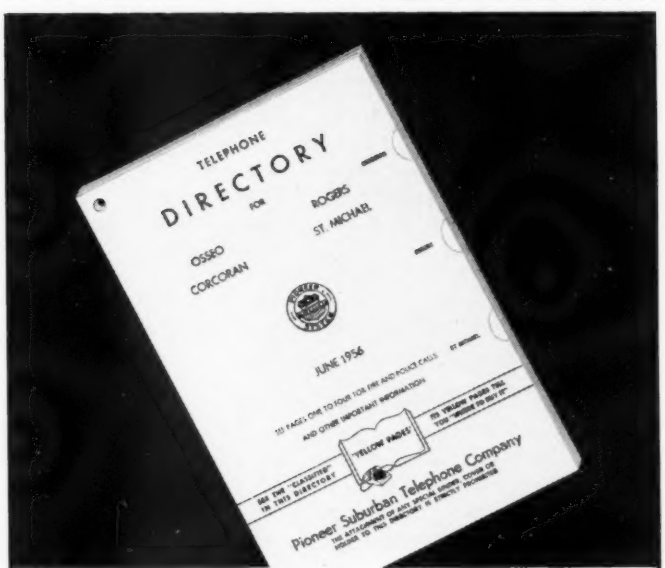

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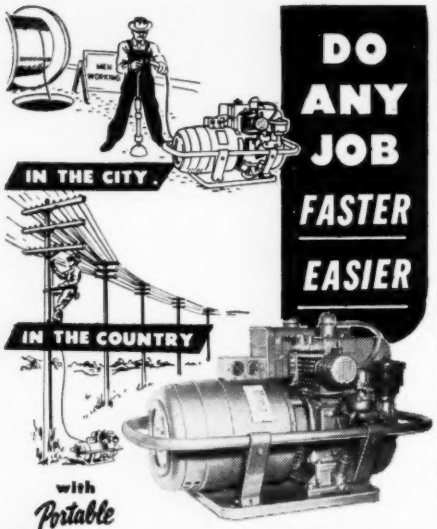

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be computed on the basis of normal depreciation and any tax savings effected by the application of accelerated depreciation or amortization of emergency facilities shall not be included in such rate determination computations. However, in a more recent order the commission approved the accounting procedure to be followed, but stated that the order should not be construed as an adjudication of any issue in future rate proceedings.

As previously mentioned, the Wisconsin commission has held that a company adopting accelerated depreciation for tax purposes should "normalize" net earnings through an additional provision of depreciation equivalent to the reduction in Federal income taxes. The commission covered the rate problem by saying that the law provides, in effect, that when the commission has determined depreciation expense for a utility, such determination shall be used in a proceeding involving rates of a utility.

Conclusion

It seems clear from the number of commission orders issued to date that the majority of the companies adopting the use of accelerated depreciation will "normalize" their net earnings by charges to income in recognition of the deferment of federal income taxes. We must await future rate proceedings and court decisions for the answers to the complicated rate problems.

SEPARATION STUDIES

Continued from page 94

must be exercised in selecting a proper person to organize the work and finalize the results. He, from my experience, should be a well-qualified accountant having analytical ability, or an engineer having a keen insight of company operations and accounting thereof. I say this because with some companies an error of as little as 1 per cent in the end result may mean a loss to the company which might exceed by several times the entire cost of making the study. As an example, I have companies in mind whose annual value of Bell-Independent traffic is such that a 1 per cent error would amount to $100,000 or more.

It is desirable before beginning, particularly, a joint study where Bell representatives assist or observe while a study is being made, to have an understanding on:

(1) Periods and duration of subscriber line holding time studies and related toll usages for determination of the ratio of local facilities used in connection with toll messages.

(2) Periods and duration of traffic unit studies for separation of switchboard, operators wages, etc., into B-I (Bell-Independent) and other usages.

(3) Analysis of toll message tickets, periods, quantities, etc., to determine conversation minutes per message by types of messages and conversation minute miles in order to determine relative usage of toll lines, intertoll dialing equipment, etc.

(4) Handling of specific items where the methods outlined in the manual cannot be used or where they would distort the real costs.

(5) Modification in procedures so as to use available records and produce more reliable separation of certain accounts.

(6) Adjustment of expenses, to account for wage and other expense changes not fully reflected on the books.

There may be other items which a knowledge of your operations and records may suggest. However, most important are agreements on period of study, rate of return the Independent company should have, and, if on end investment or average investment, and the effective settlement date. As to the latter, many of the Bell associated companies maintain that it is a fixed Bell System policy that the effective date is the completion date of a study. Remember, it takes two to make a bargain and your company may also have a policy. The effective date is particularly important when there have been material changes in wage rates or operational changes which materially affect operating expenses. If these matters are anticipated and worked out beforehand, the going will be easier. Those we deal with can be expected to be fair and reasonable when confronted with facts.

Whoever heads your separation study will need the fullest cooperation from each of your company's department heads and it may help if at the start it is made clear to them, by someone in authority, that a time schedule must be met and that it is necessary to promptly comply with such requests for information or operational studies as may come from your separations supervisor.

Holding time studies of subscribers lines and central office equipment must be made by your central office maintenance people with the advice or assistance of traffic employes.

Traffic unit studies must be made by your traffic people.

Conversation time studies must be made by employes having access to toll tickets.

Message minutes and message minute mile studies must be made by employes familiar with routings and who have access to your point-to-point message records.

Operational studies must be made by

your commercial and revenue accounting departments.

Appraisals must be made by your equipment engineer for separation of central office equipment accounts into location and usage categories.

Inventories must be made of the relative exchange and toll use of your pole lines, and of your cables and underground conduit.

Each of these and other analyses must be reasonably accurate and closely followed by your separations supervisor who, after relative usages are obtained, will apply the resultant usage factors to the company's records of investment and expenses in obtaining the desired full costs.

Care should be exercised in using the presently available separation procedures, which if followed literally, may distort the real costs resulting in a considerable loss to a company. As an example: Should there be a considerably higher ratio of Bell traffic during evening and night periods due to the reduced evening and night rates and to much social calling, wages should be separately calculated for day and night because of night wage differentials, more short and split tricks, and possibly lower evening and night operator unit loads. Another example: In dial offices also having manual toll, and information switchboards, the cost of equipment per square foot of building floor space is much less for manual switchboards than for other equipment. If the space occupied by the manual switchboards is not calculated separately, these switchboards, which generally have a high Bell usage, will be assigned only a small fraction of the land and building they actually use. These are only examples, therefore, to make an undistorted cost study, let me repeat, care should be exercised in applying the presently available separation helps. Remember each of the now available separation booklets were designed for another specific purpose and their underlying principals only should be used.

In conclusion, let me say that I hope this discourse has given those of you who are already sold on making separation cost studies, something of added value, and that it will encourage others to make studies. I have a selfish interest in trying to sell you on separation studies for I am one who actively participated in the 1952 nationwide "A" and "B" studies, in the 1955 line haul studies, and as a member of your Toll Compensations Committee followed closely the making of the recent "A" and "B" studies, and I remember well the difficulties we had in encouraging sufficient companies to make the required studies.

I know that more studies will be required from time to time to keep the nationwide compensations current, therefore, I am hopeful that some of the things I have said will help those who are delegated to make future studies to have the support of more companies than was had in the making of past studies.

This separation business is a large order, but it can be done, and profitably to each of you.

Growth of Bureaucracy

"An alien theory (gives the nation's capital a) dangerous concentration of power. More and more bureaus have been created and are presided over by bureaucrats over whom we, the people, have no direct control."—HAROLD POWERS, *lieutenant governor of California.*

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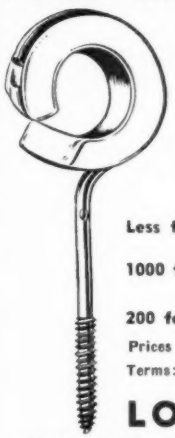

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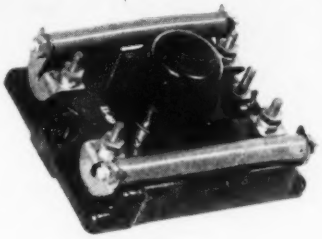

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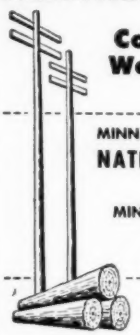

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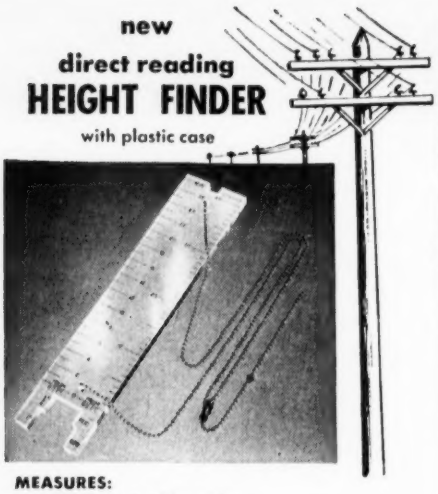

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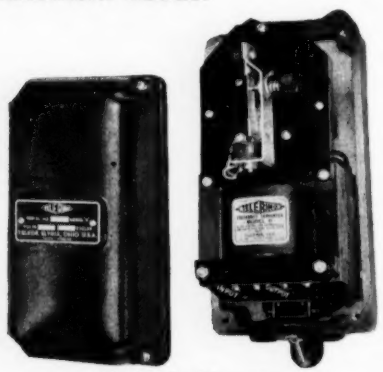

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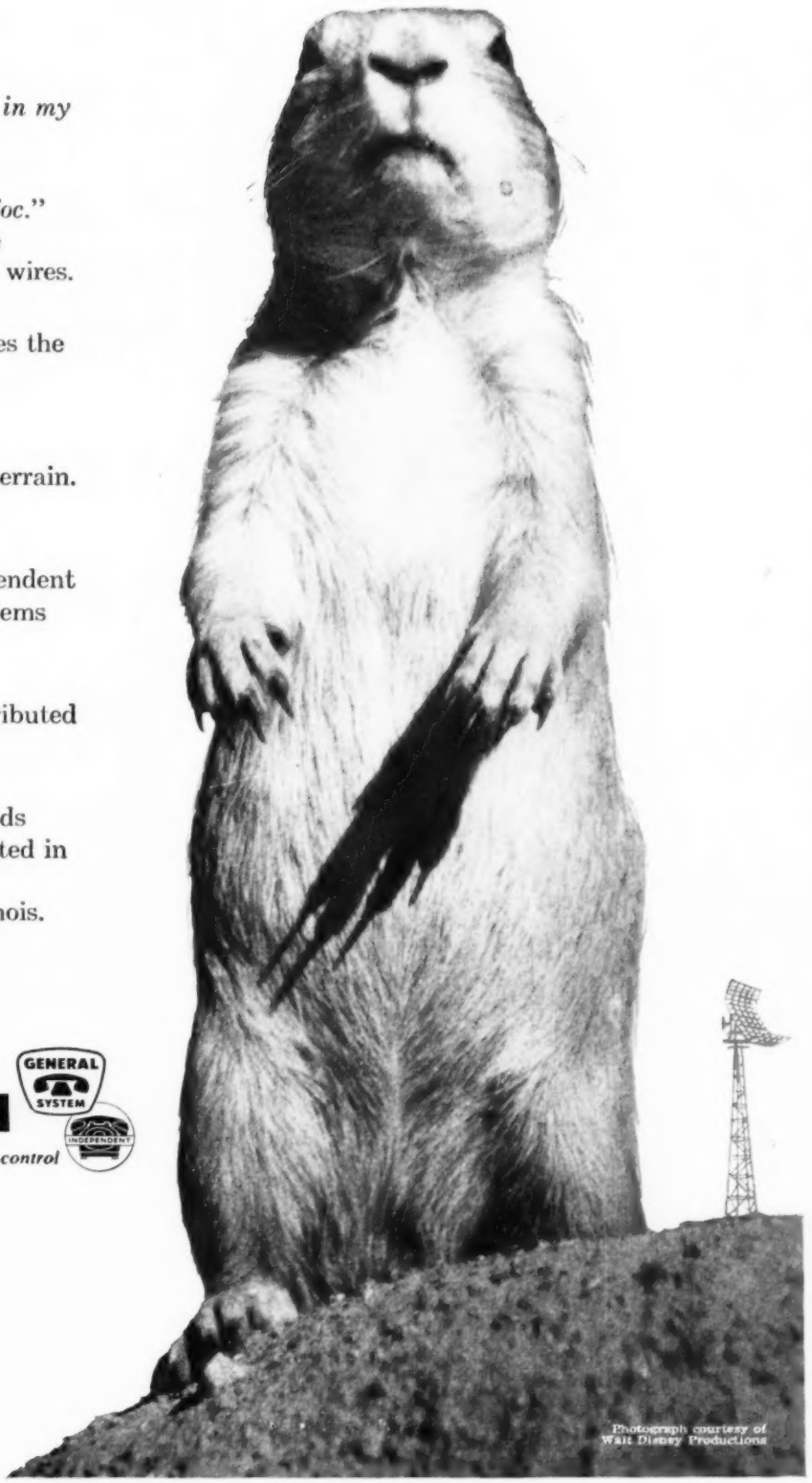

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